DVP-NS705V/NS755V/ NS905V/NS915V

RMT-D146P/D147A/D147E/D1470/D147P

SERVICE MANUAL

Self Diagnosis Supported model

Photo: DVP-NS905V (Silver type)

US Model
Canadian Model
DVP-NS755V

AEP Model
UK Model
DVP-NS705V/NS905V

E Model
DVP-NS915V

Russian Model
Saudi Arabia Model
Middle East Model
Australian Model
New Zealand Model
DVP-NS905V

SPECIFICATIONS

System

Laser: Semiconductor laser
Signal format system:
DVP-NS705V/NS905V: PAL (NTSC)
DVP-NS755V: NTSC
DVP-NS915V: NTSC/PAL (To change the color system)

Audio characteristics

Frequency response: DVD VIDEO (PCM 96 kHz): 2 Hz to 44 kHz (44 kHz: –2 dB ±1 dB)/Super Audio CD: 2 Hz to 100 kHz (50 kHz: –3 dB ±1 dB)/CD: 2 Hz to 20 kHz (±0.5 dB)
Signal-to-noise ratio (S/N ratio): 115 dB (LINE OUT L/R (AUDIO) 1/2 jacks only) (EXCEPT AEP, UK, Russian) (LINE OUT L/R (AUDIO) jacks only) (AEP, UK, Russian)
Harmonic distortion: 0.003 %
Dynamic range: DVD VIDEO/Super Audio CD: 103 dB/CD: 99 dB
Wow and flutter: Less than detected value (±0.001% W PEAK)

Outputs

AEP, UK, Russian:
(**Jack name:** Jack type/Output level/Load impedance)
LINE OUT (AUDIO): Phono jack/2 Vrms/ 10 kilohms
DIGITAL OUT (OPTICAL): Optical output jack/–18 dBm (wave length: 660 nm)
DIGITAL OUT (COAXIAL): Phono jack/ 0.5 Vp-p/75 ohms
5.1CH OUTPUT: Phono jack/2 Vrms/ 10 kilohms
LINE OUT (VIDEO): Phono jack/1.0 Vp-p/ 75 ohms
S VIDEO OUT: 4-pin mini DIN/Y: 1.0 Vp-p, C: 0.3 Vp-p (PAL), 0.286 Vp-p (NTSC)/75 ohms

EXCEPT AEP, UK, Russian:
(**Jack name:** Jack type/Output level/Load impedance)
LINE OUT (AUDIO) 1/2: Phono jack/ 2 Vrms/10 kilohms
DIGITAL OUT (OPTICAL): Optical output jack/–18 dBm (wave length: 660 nm)
DIGITAL OUT (COAXIAL): Phono jack/ 0.5 Vp-p/75 ohms
5.1CH OUTPUT: Phono jack/2 Vrms/ 10 kilohms
COMPONENT VIDEO OUT(Y, P_B/C_B, P_R/C_R): Phono jack/Y: 1.0 Vp-p/P_B/C_B, P_R/C_R: 0.7 Vp-p/75 ohms
LINE OUT (VIDEO) 1/2: Phono jack/ 1.0 Vp-p/75 ohms
S VIDEO OUT 1/2: 4-pin mini DIN/Y: 1.0 Vp-p, C: 0.3 Vp-p (PAL), 0.286 Vp-p (NTSC)/75 ohms

General

Power requirements:
110 V AC, 60 Hz
120 V AC, 60 Hz
220 V AC, 60 Hz
220–240 V AC, 50/60 Hz
110–240 V AC, 50/60 Hz
See page 1-1 for further information
Power consumption:
15 W
16 W
17 W
18 W
See page 1-1 for further information

Dimensions (approx.):
DVP-NS705V/NS755V:
430 × 74 × 257 mm (17 × 3 × 10 1/8 in.)
DVP-NS905V/NS915V:
430 × 77 × 257 mm (17 × 3 1/8 × 10 1/8 in.) (width/height/depth) incl. projecting parts
Mass (approx.):
DVP-NS705V/NS755V:
2.6 kg (5 47/64 lb)
DVP-NS905V/NS915V:
2.8 kg (6 3/16 lb)
Operating temperature: 5 °C to 35 °C (41 °F to 95 °F)
Operating humidity: 25 % to 80 %

Supplied accessories

Check that you have the following items:
- Audio/video cord (pinplug × 3 ⟷ pinplug × 3) (1)
- Remote commander (remote) (1)
- Size AA (R6) batteries (2)

Specifications and design are subject to change without notice.

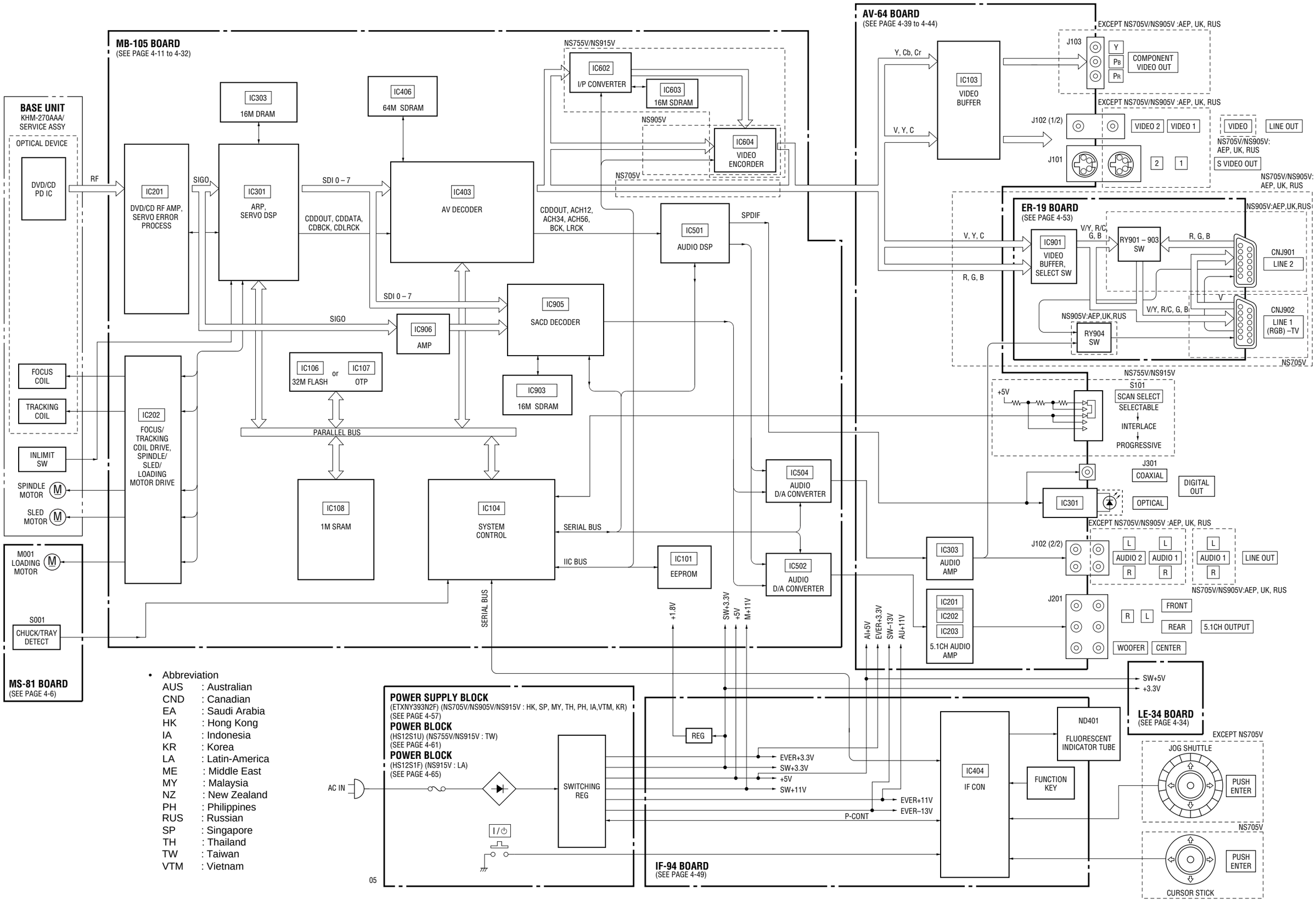
ENERGY STAR® is a U.S. registered mark. As an ENERGY STAR® Partner, Sony Corporation has determined that this product meets the ENERGY STAR® guidelines for energy efficiency.

DVD VIDEO SUPER AUDIO CD COMPACT disc DIGITAL VIDEO **CD/DVD PLAYER**

SONY®

SECTION 3
BLOCK DIAGRAMS

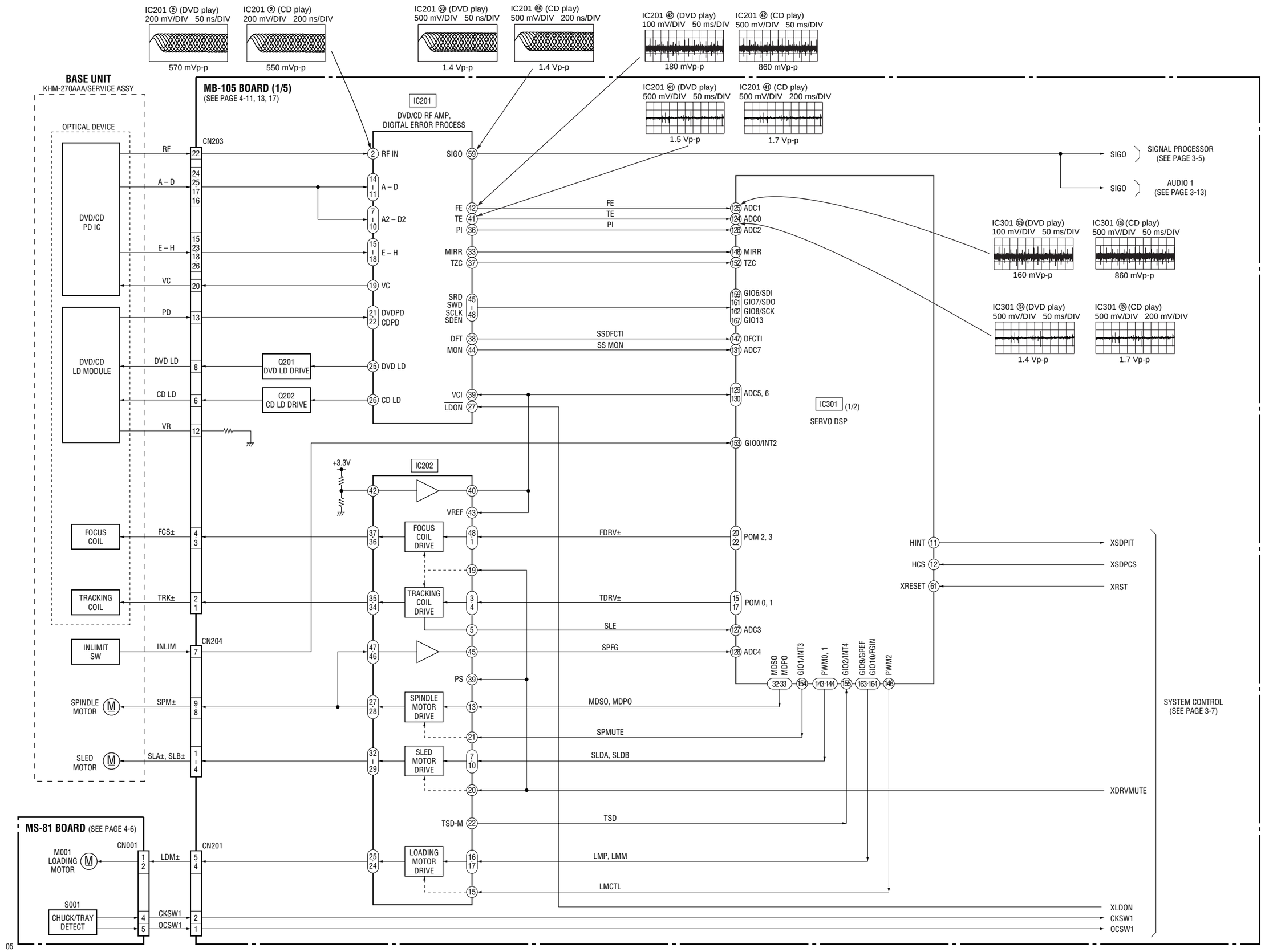
3-1. OVERALL BLOCK DIAGRAM



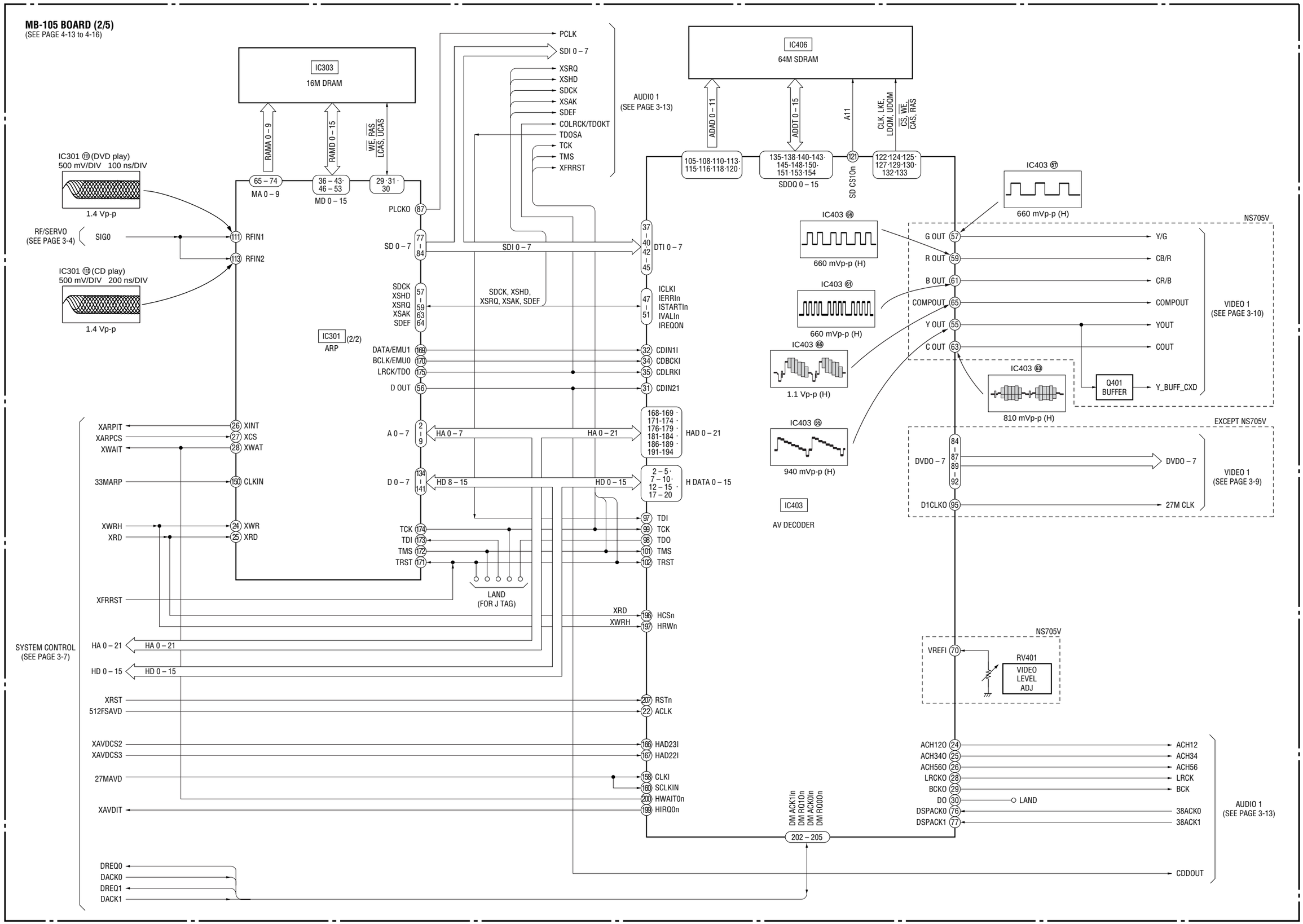
- Abbreviation

AUS	: Australian
CND	: Canadian
EA	: Saudi Arabia
HK	: Hong Kong
IA	: Indonesia
KR	: Korea
LA	: Latin-America
ME	: Middle East
MY	: Malaysia
NZ	: New Zealand
PH	: Philippines
RUS	: Russian
SP	: Singapore
TH	: Thailand
TW	: Taiwan
VTM	: Vietnam

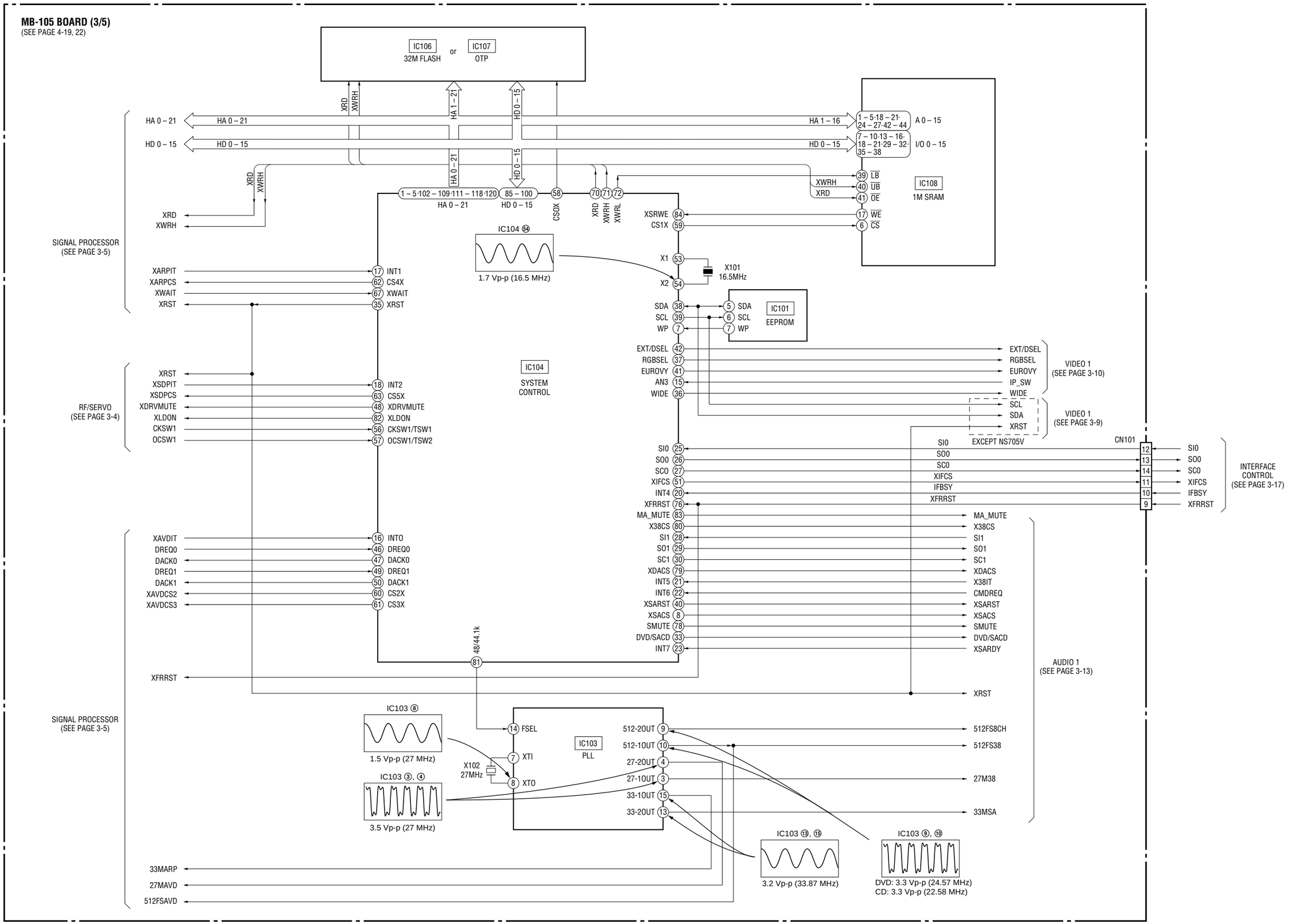
3-2. RF/SERVO BLOCK DIAGRAM



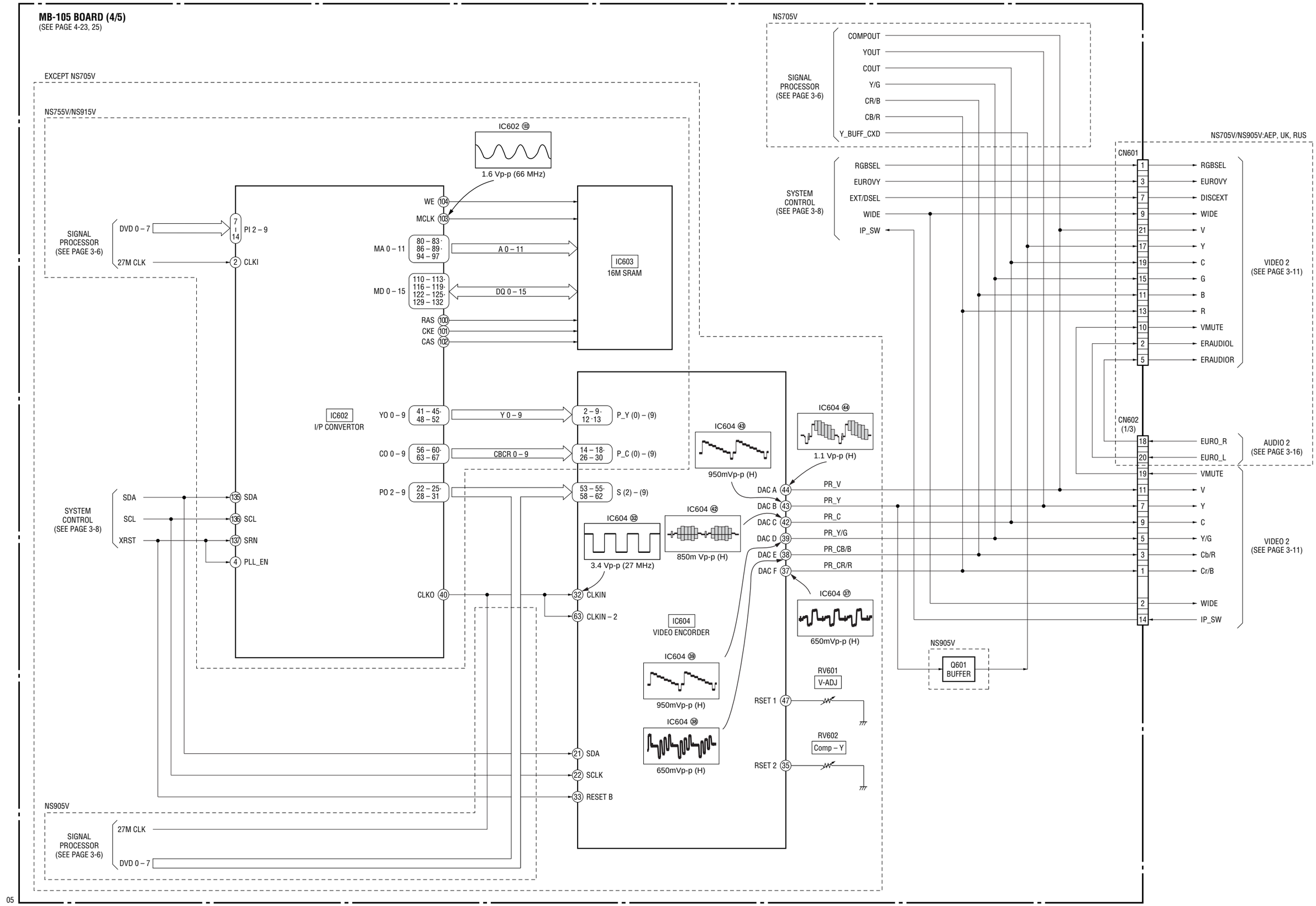
3-3. SIGNAL PROCESSOR BLOCK DIAGRAM



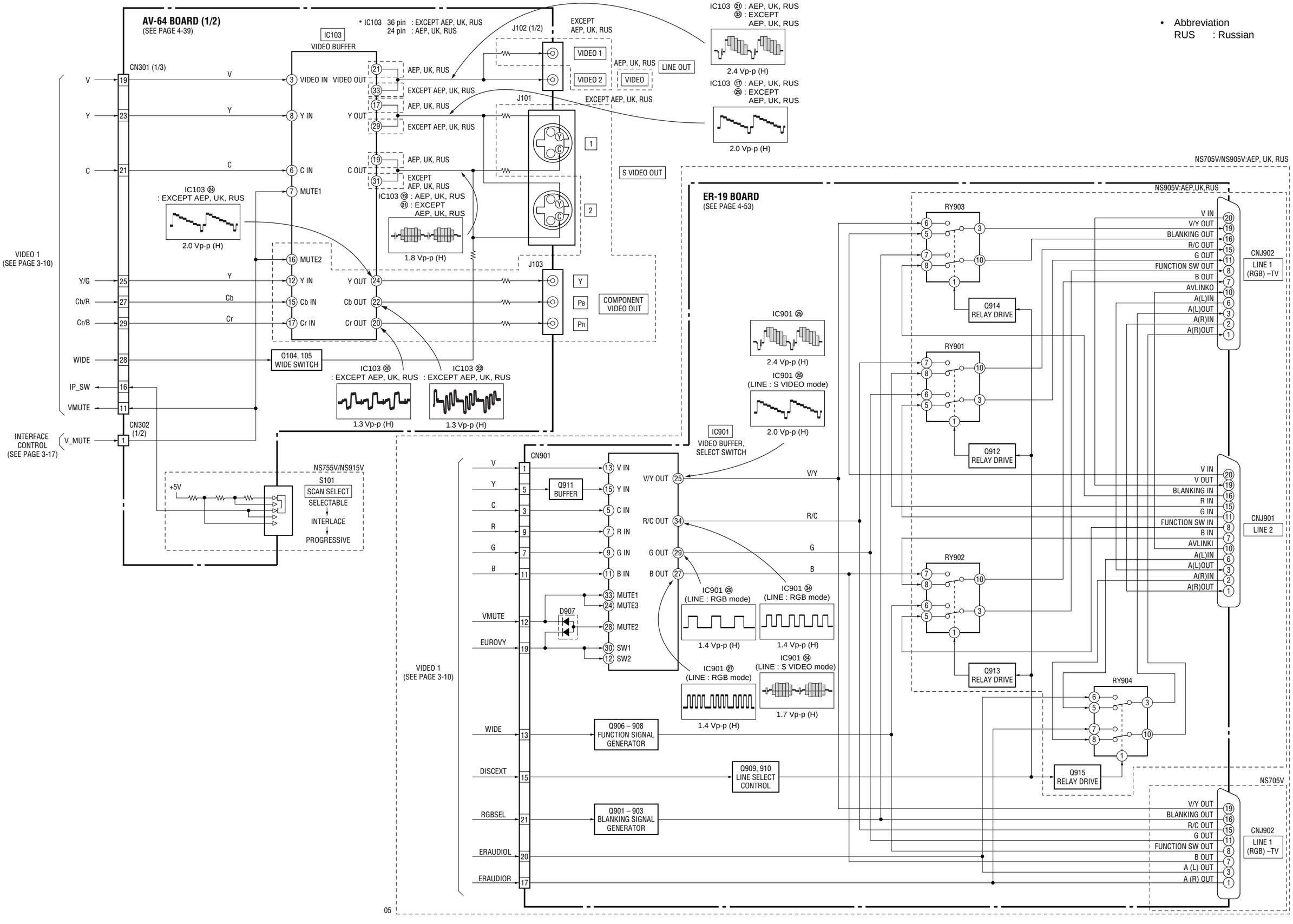
3-4. SYSTEM CONTROL BLOCK DIAGRAM



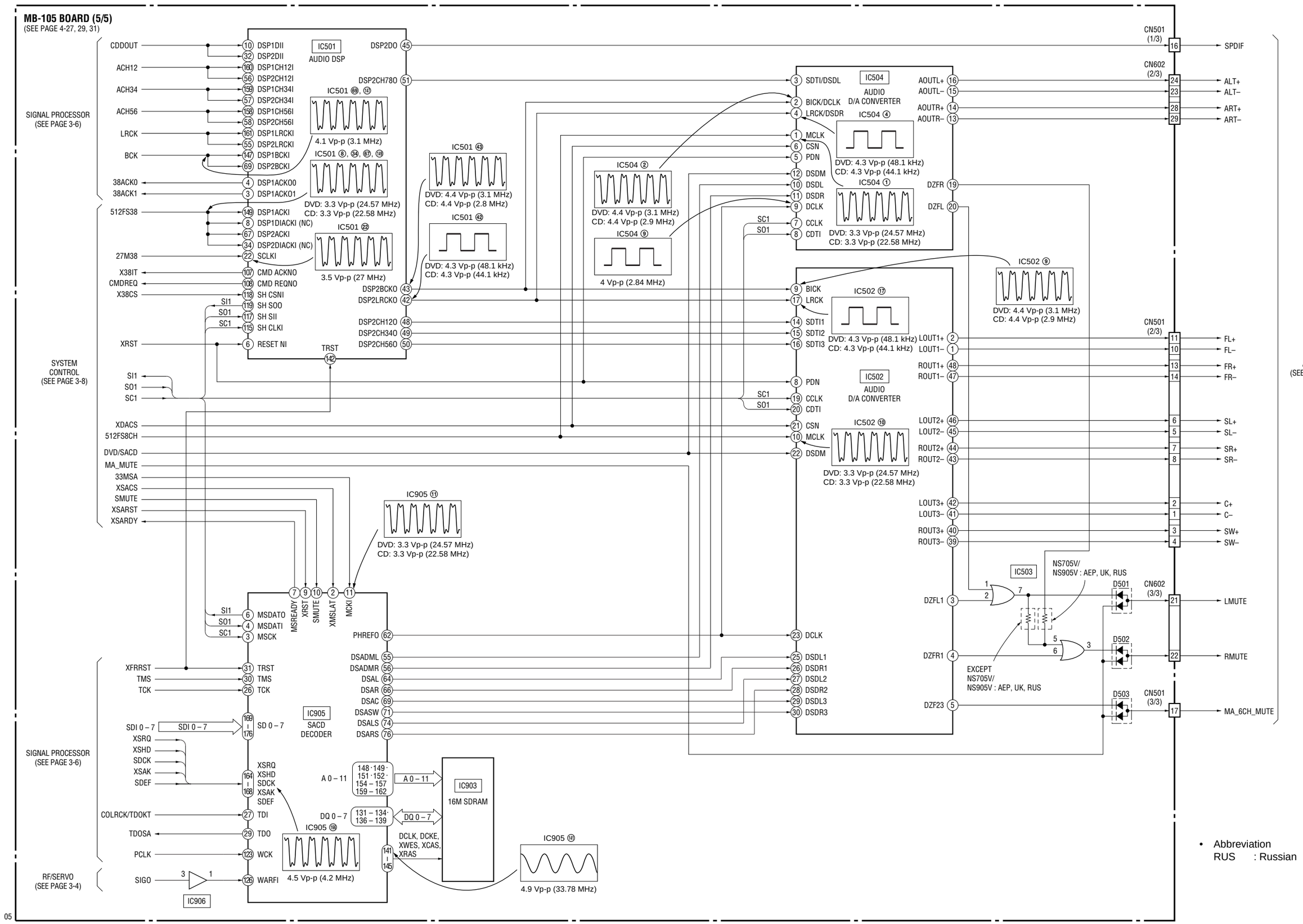
3-5. VIDEO (1) BLOCK DIAGRAM



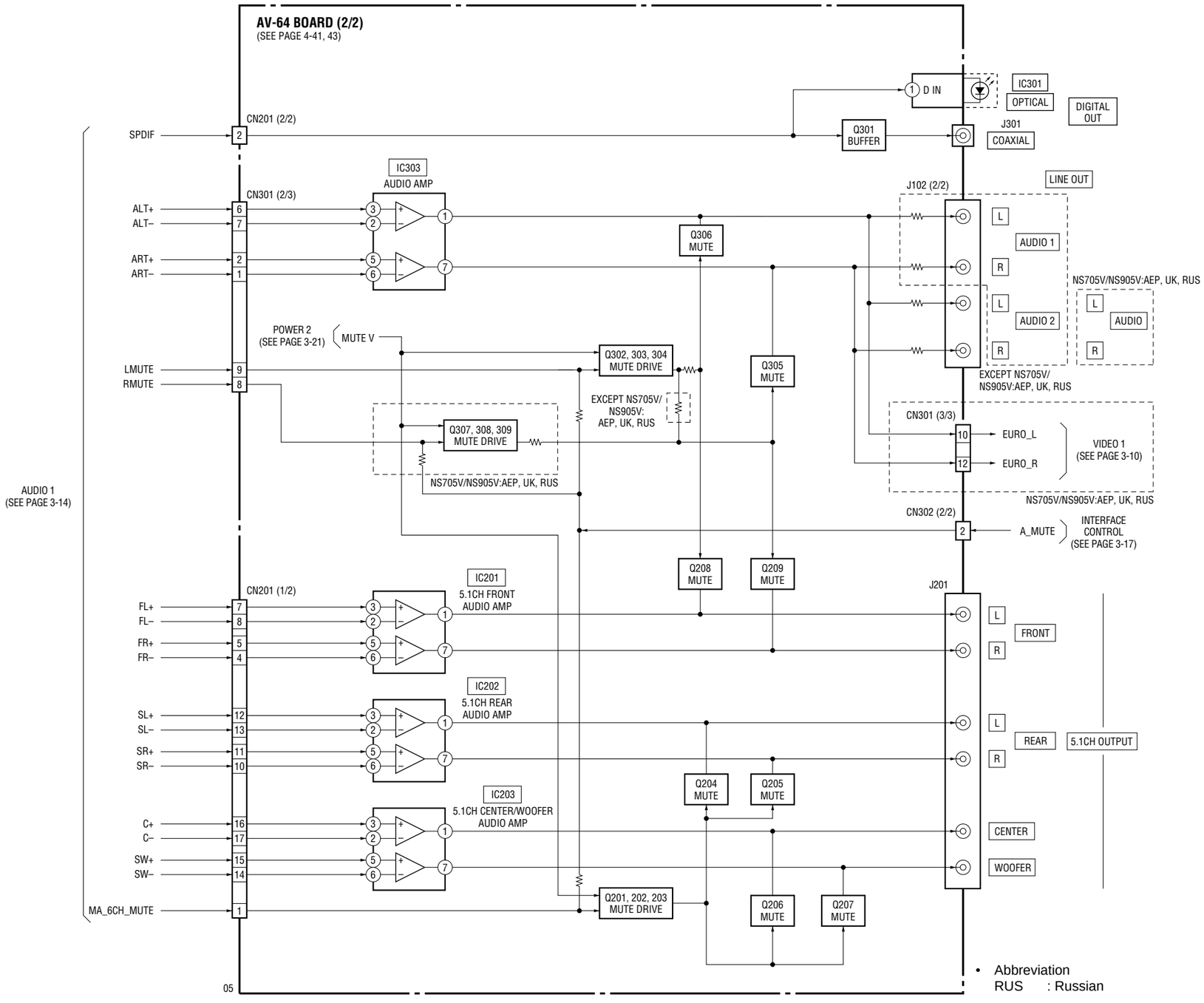
3-6. VIDEO (2) BLOCK DIAGRAM



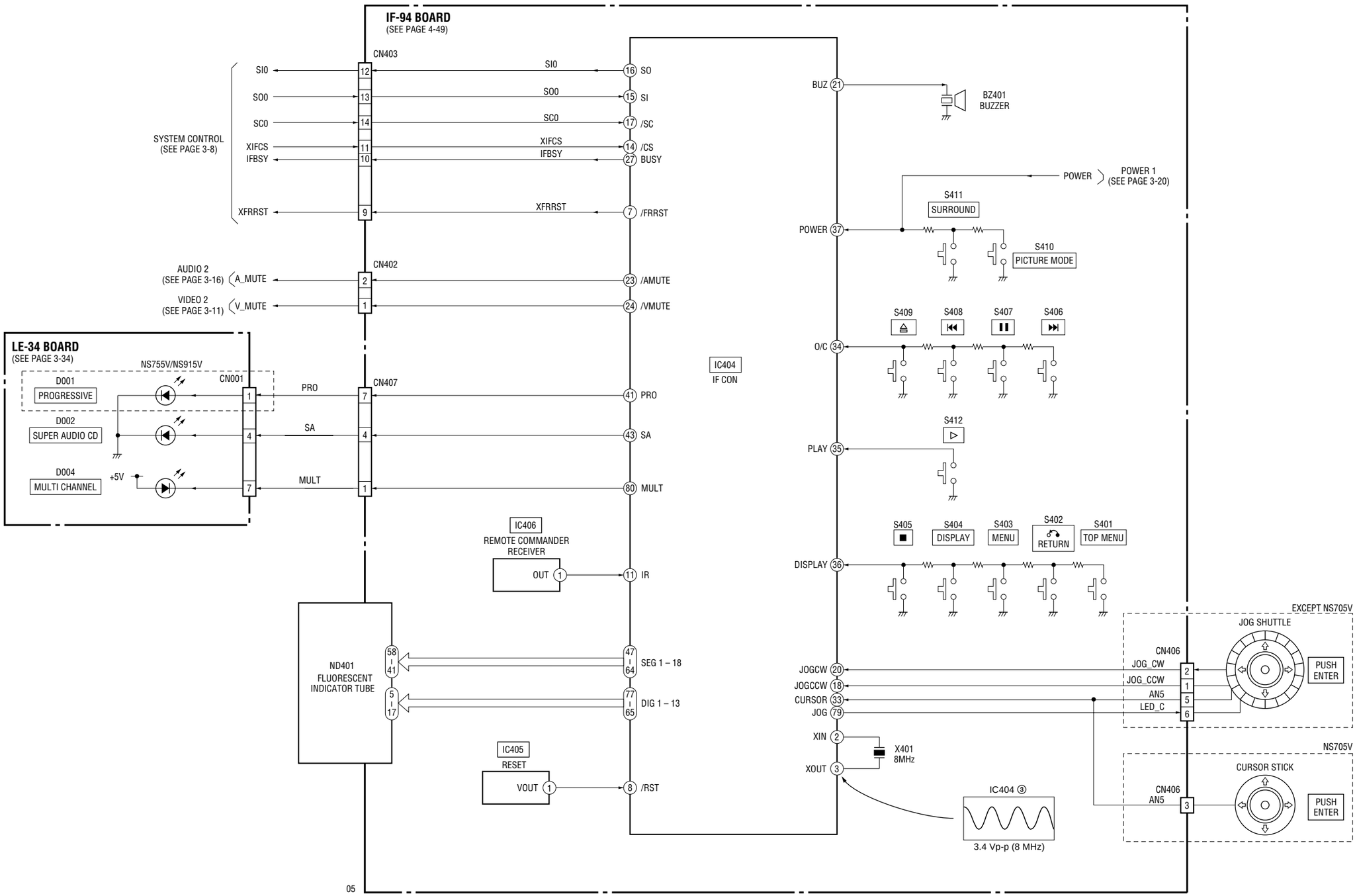
3-7. AUDIO (1) BLOCK DIAGRAM



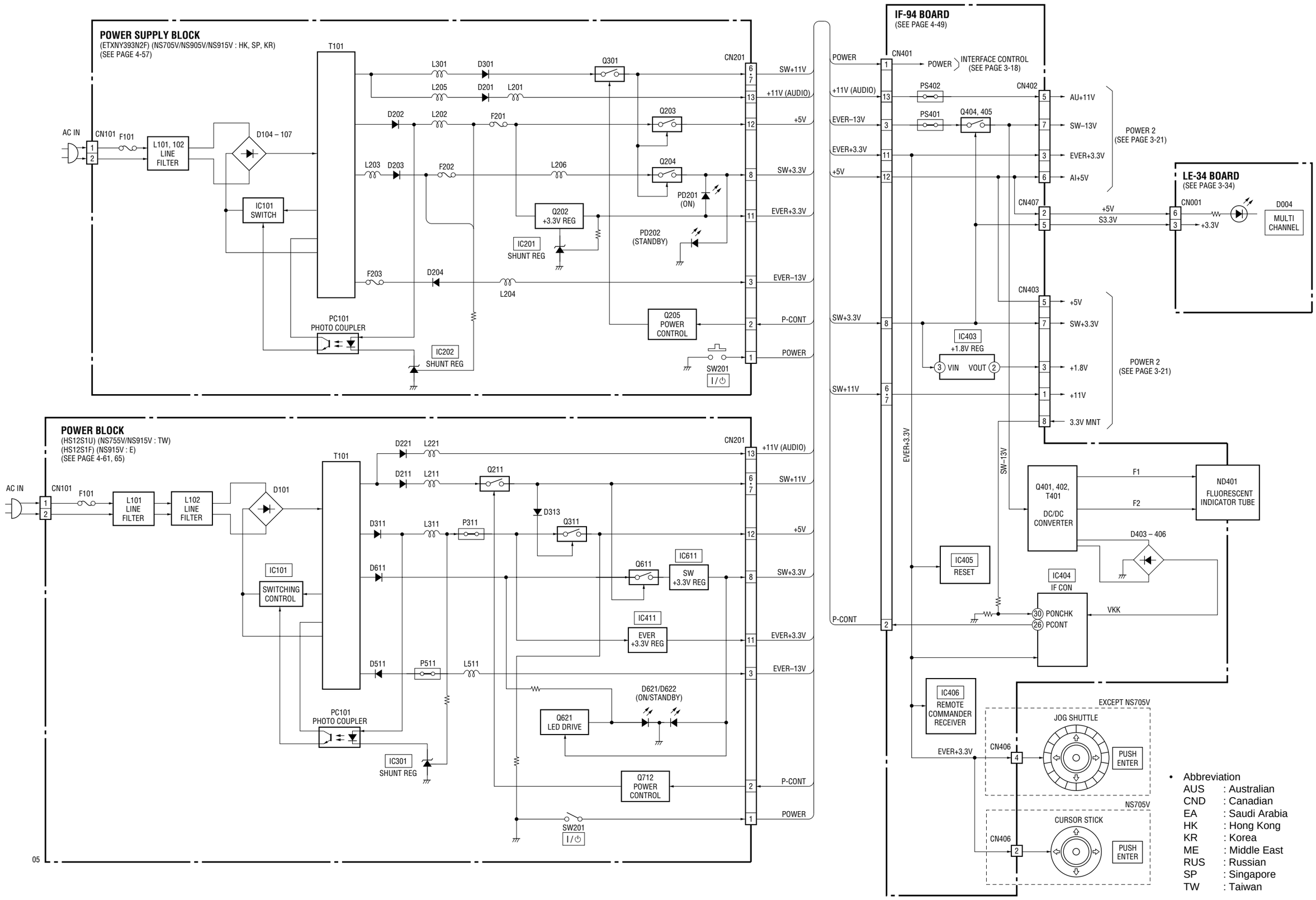
3-8. AUDIO (2) BLOCK DIAGRAM



3-9. INTERFACE CONTROL BLOCK DIAGRAM

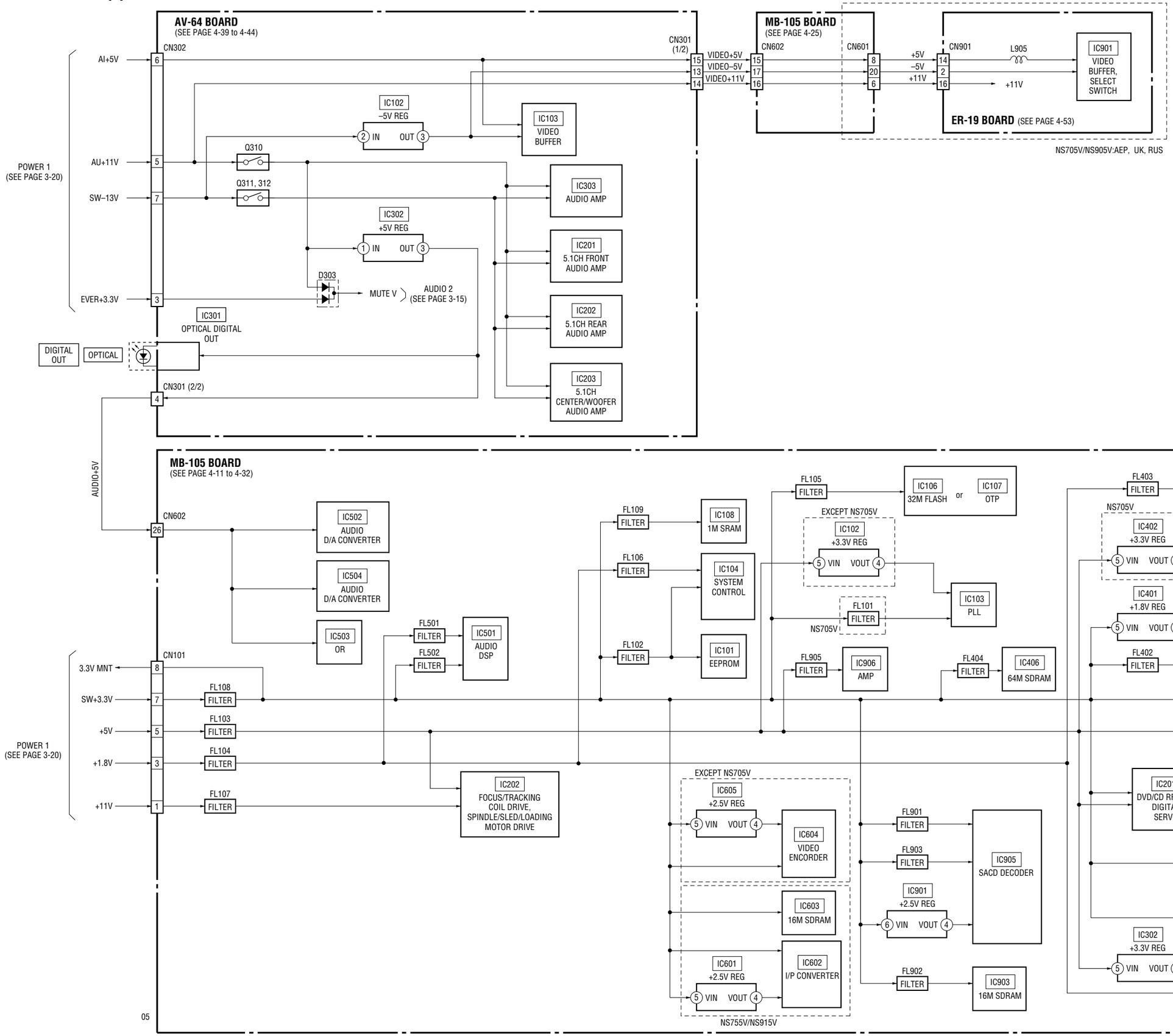


3-10. POWER (1) BLOCK DIAGRAM



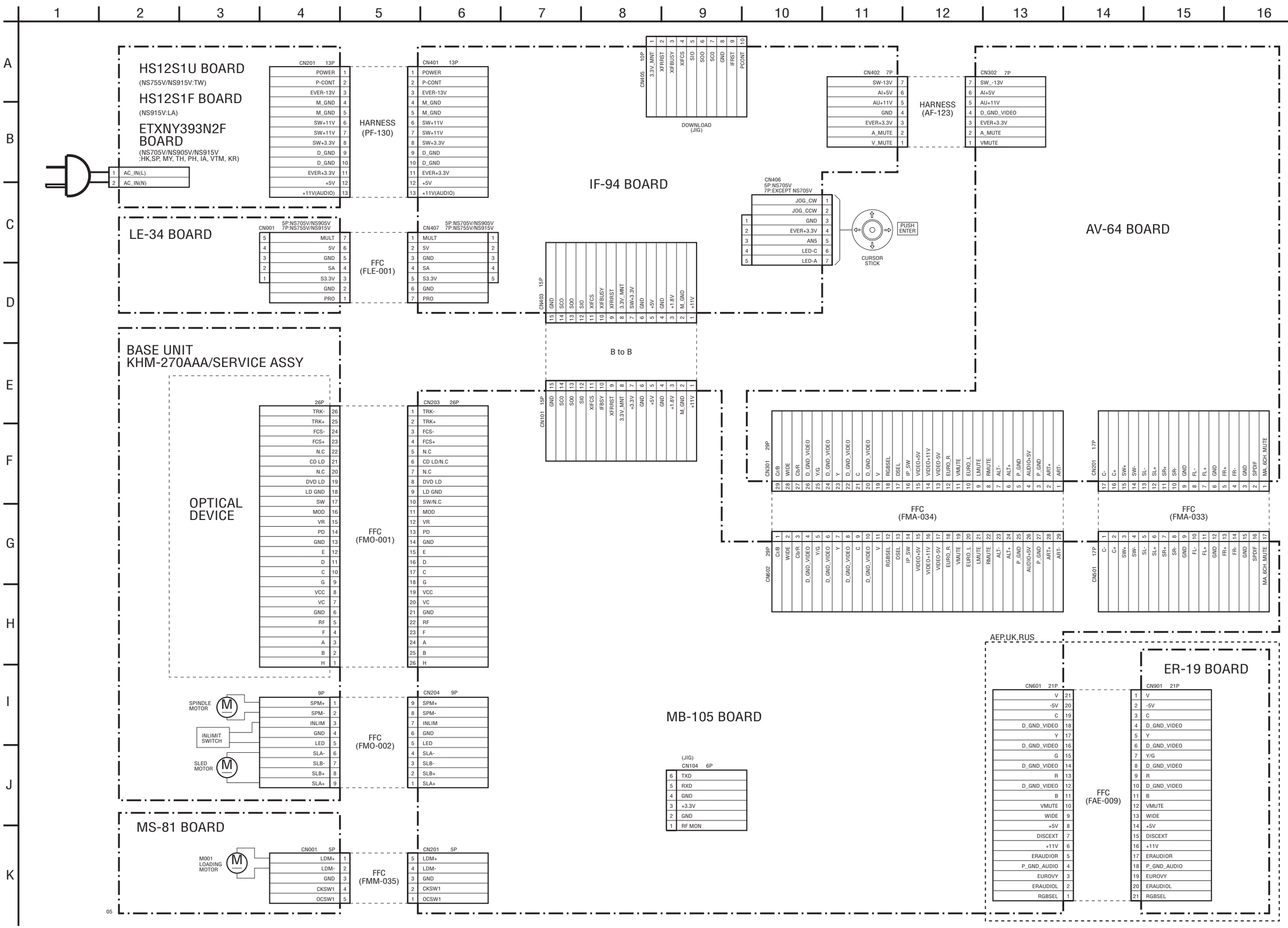
- Abbreviation
  - AUS : Australian
  - CND : Canadian
  - EA : Saudi Arabia
  - HK : Hong Kong
  - KR : Korea
  - ME : Middle East
  - RUS : Russian
  - SP : Singapore
  - TW : Taiwan

3-11. POWER (2) BLOCK DIAGRAM



- Abbreviation
  RUS : Russian

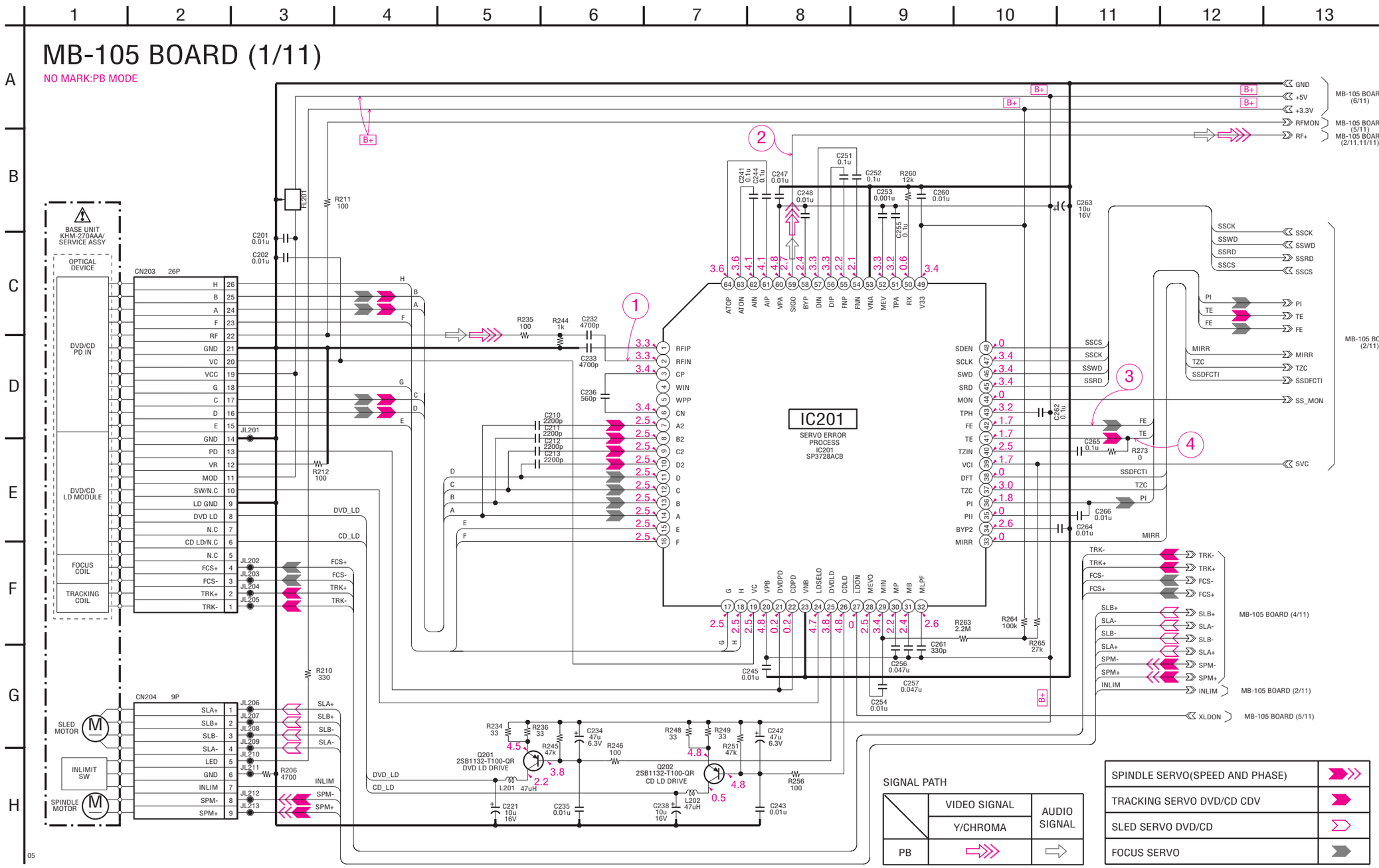
4-1. FRAME SCHEMATIC DIAGRAM



MB-105 (RF AMP, SERVO) SCHEMATIC DIAGRAM **• See page 4-7 for printed wiring board.**

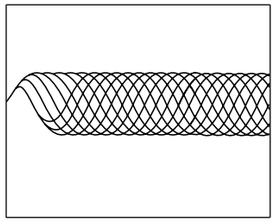
– Ref. No.: MB-105 board; 2,000 series –

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



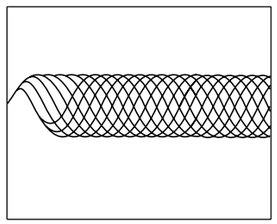
• **Waveforms**

❶ IC201 ② (DVD play)
200 mV/DIV 50 ns/DIV



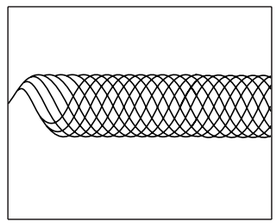
570 mVp-p

❶ IC201 ② (CD play)
200 mV/DIV 200 ns/DIV



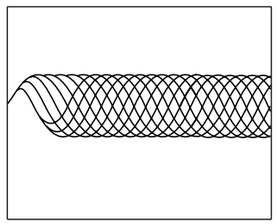
550 mVp-p

❷ IC201 ⑲ (DVD play)
500 mV/DIV 50 ns/DIV



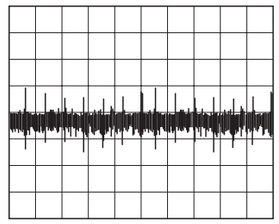
1.4 Vp-p

❷ IC201 ⑲ (CD play)
500 mV/DIV 200 ns/DIV



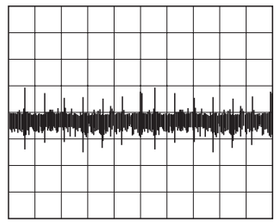
1.4 Vp-p

❸ IC201 ㊷ (DVD play)
100 mV/DIV 50 ms/DIV



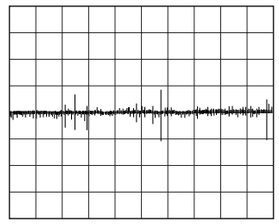
180 mVp-p

❸ IC201 ㊷ (CD play)
500 mV/DIV 50 ms/DIV



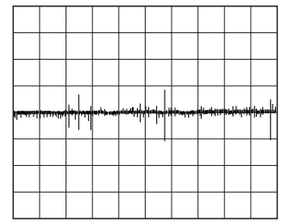
860 mVp-p

❹ IC201 ㊶ (DVD play)
500 mV/DIV 50 ms/DIV



1.5 Vp-p

❹ IC201 ㊶ (CD play)
500 mV/DIV 200 ms/DIV

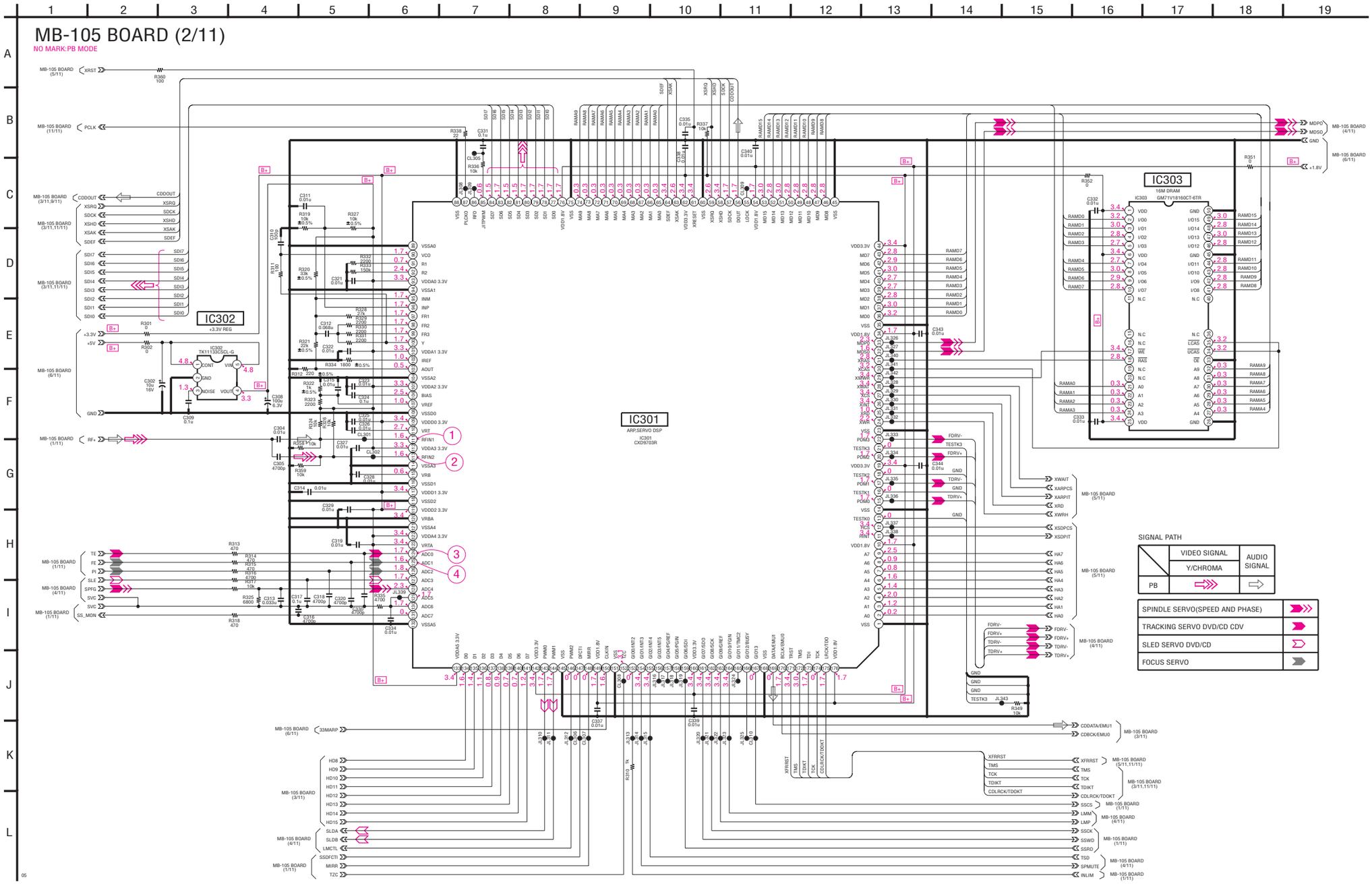


1.7 Vp-p

RF AMP, SERVO
MB-105 (1/11)

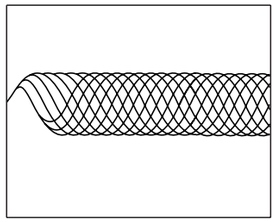
MB-105 (ARP, SERVO DSP) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-105 board; 2,000 series –



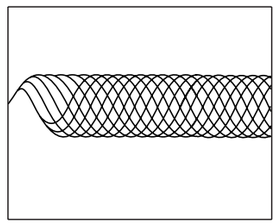
• **Waveforms**

❶ IC301 ⑪① (DVD play)
500 mV/DIV 100 ns/DIV



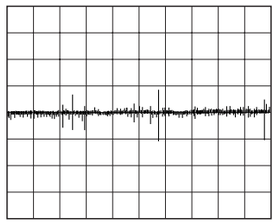
1.4 Vp-p

❷ IC301 ⑪⑨ (CD play)
500 mV/DIV 200 ns/DIV



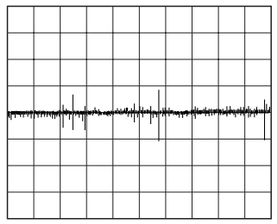
1.4 Vp-p

❸ IC301 ⑫④ (DVD play)
500 mV/DIV 50 ms/DIV



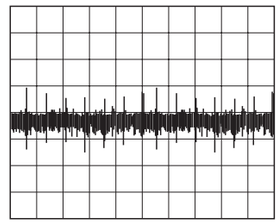
1.4 Vp-p

❸ IC301 ⑫④ (CD play)
500 mV/DIV 200 ms/DIV



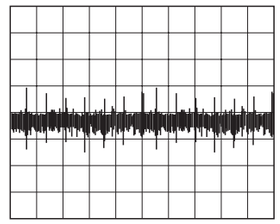
1.7 Vp-p

❹ IC301 ⑫⑤ (DVD play)
100 mV/DIV 50 ms/DIV



160 mVp-p

❹ IC301 ⑫⑤ (CD play)
500 mV/DIV 50 ms/DIV



860 mVp-p

MB-105 (AV DECODER) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-105 board; 2,000 series –

MB-105 BOARD (3/11)

NO MARK:PB MODE

IC403
AV DECODER
IC403
CXD1935Q

IC406
64M SDRAM
IC406 HY57V641620HGT-P-TR-V

IC401
+1.8V REG
IC401 TK11118CSCL-G

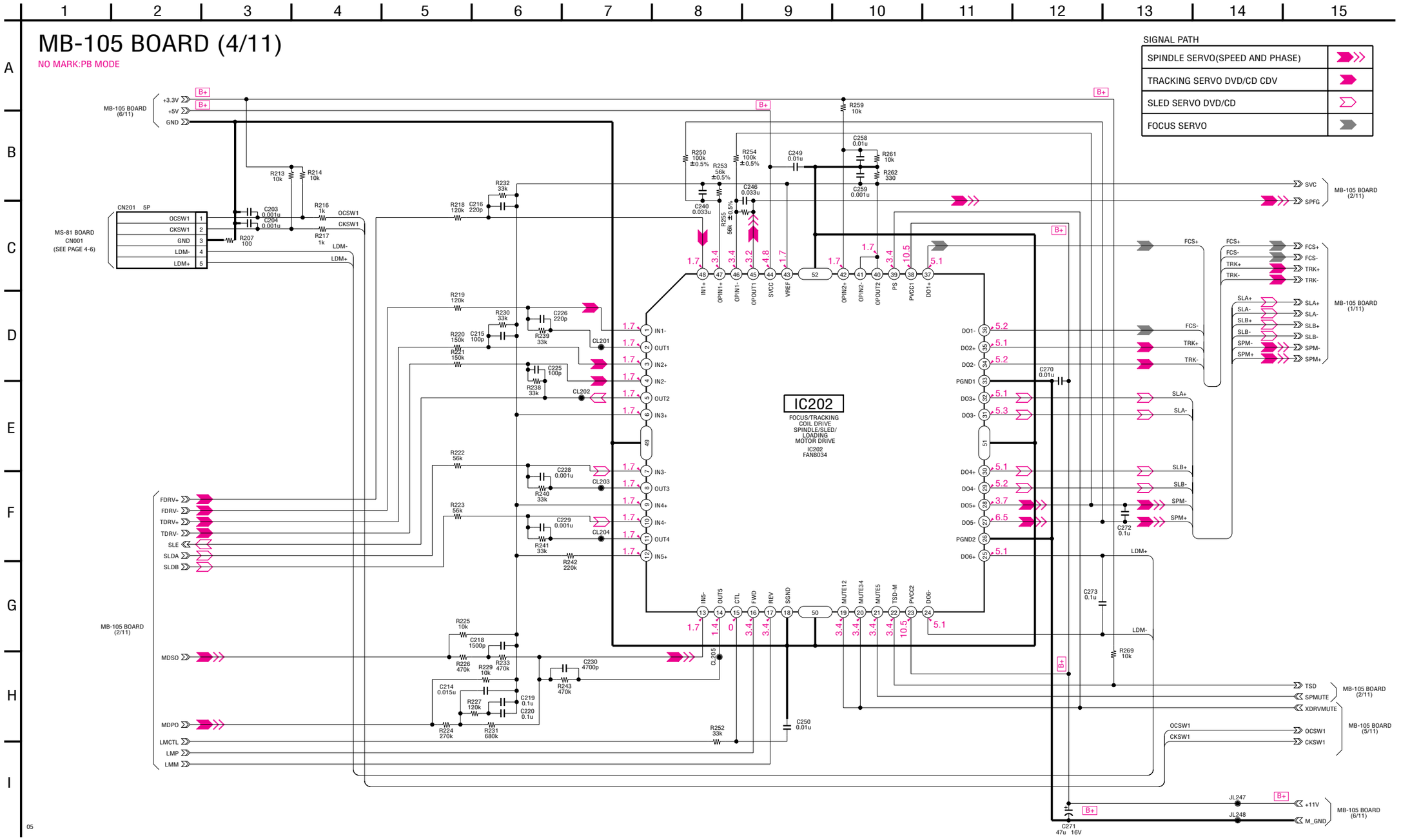
IC402
+3.3V REG
IC402 TK11133CSCL-G

SIGNAL PATH

	VIDEO SIGNAL			AUDIO SIGNAL
	CHROMA	Y	Y/CHROMA	
PB	⇨	⇨	⇨	⇨
SLED SERVO DVD/CD				⇨

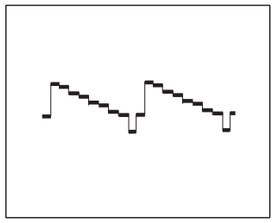
MB-105 (MOTOR DRIVE) SCHEMATIC DIAGRAM **• See page 4-7 for printed wiring board.**

– Ref. No.: MB-105 board; 2,000 series –



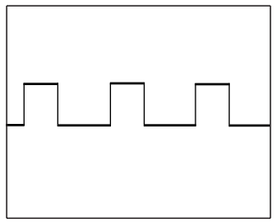
• Waveforms

❶ IC403 ㊺



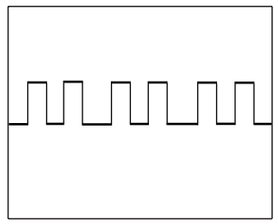
940 mVp-p (H)

❷ IC403 ㊼ : NS705V



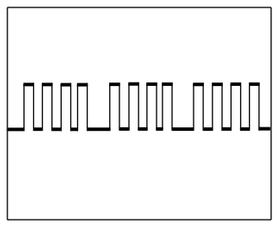
660 mVp-p (H)

❸ IC403 ㊾ : NS705V



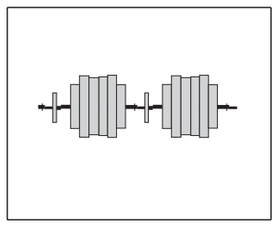
660 mVp-p (H)

❹ IC403 ㊶ : NS705V



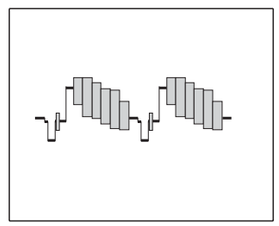
660 mVp-p (H)

❺ IC403 ㊸



810 mVp-p (H)

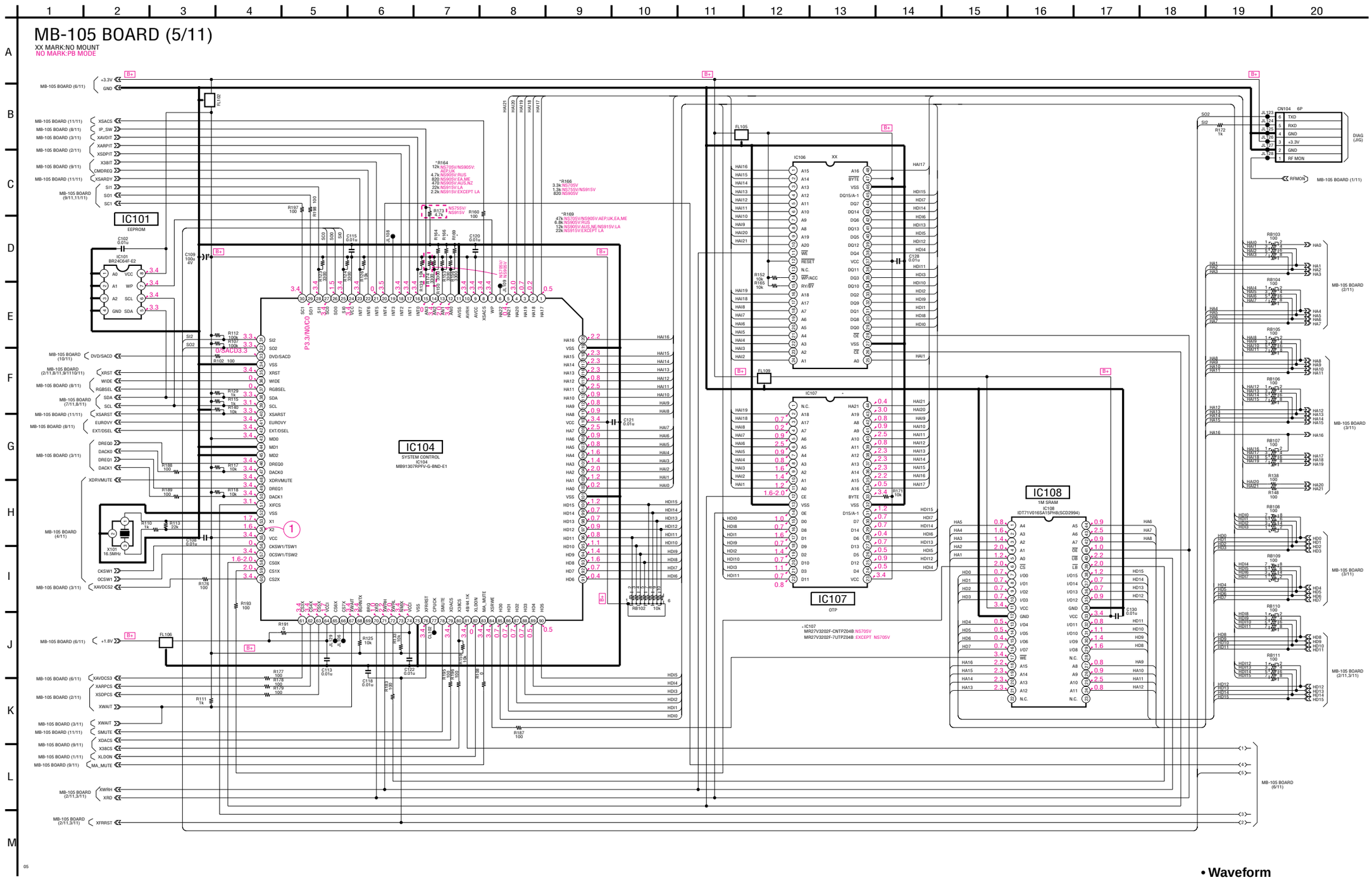
❻ IC403 ㊺



1.1 Vp-p (H)

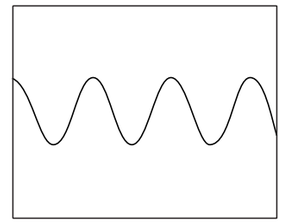
MB-105 (SYSTEM CONTROL) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-105 board; 2,000 series –



• **Waveform**

❶ IC104 ㊹

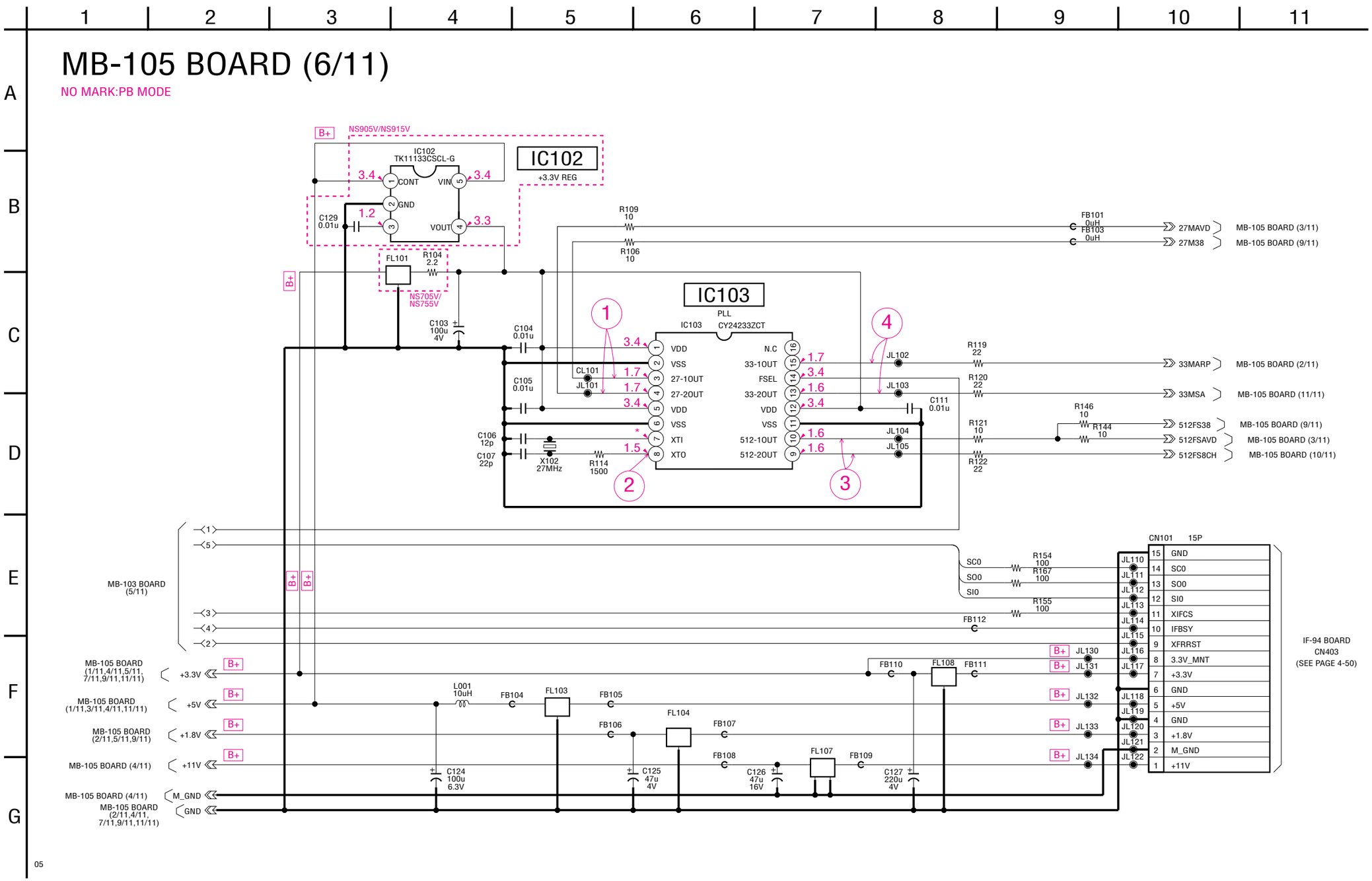


1.7 Vp-p (16.5 MHz)

SYSTEM CONTROL
MB-105 (5/11)

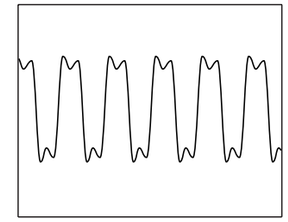
MB-105 (CLOCK GENERATOR) SCHEMATIC DIAGRAM **• See page 4-7 for printed wiring board.**

– Ref. No.: MB-105 board; 2,000 series –



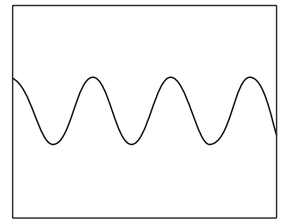
• Waveforms

❶ IC103 ③, ④



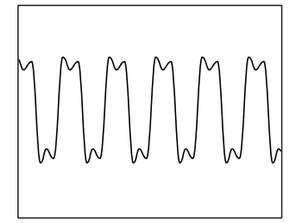
3.5 Vp-p (27 MHz)

❷ IC103 ⑧



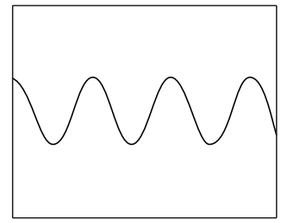
1.5 Vp-p (27 MHz)

❸ IC103 ⑨, ⑩



DVD : 3.3 Vp-p (24.57 MHz)
CD : 3.3 Vp-p (22.58 MHz)

❹ IC103 ⑬, ⑮



3.2 Vp-p (33.87 MHz)

MB-105 (I/P CONVERTER) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-105 board; 2,000 series –

MB-105 BOARD (7/11)

NO MARK:PB MODE

IC602 I/P CONVERTER 1C602 CXD9698R

IC601 +2.5V REG IC601 TK11125CSCL-G

IC603 16M SDRAM IC603 HY57V161610DTC-7TR

NS755V/NS915V

NS905V

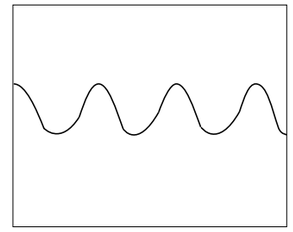
EXCEPT NS705V

SIGNAL PATH

	VIDEO SIGNAL		
	CHROMA	Y	Y/CHROMA
PB	⇨	⇨	⇨

• **Waveform**

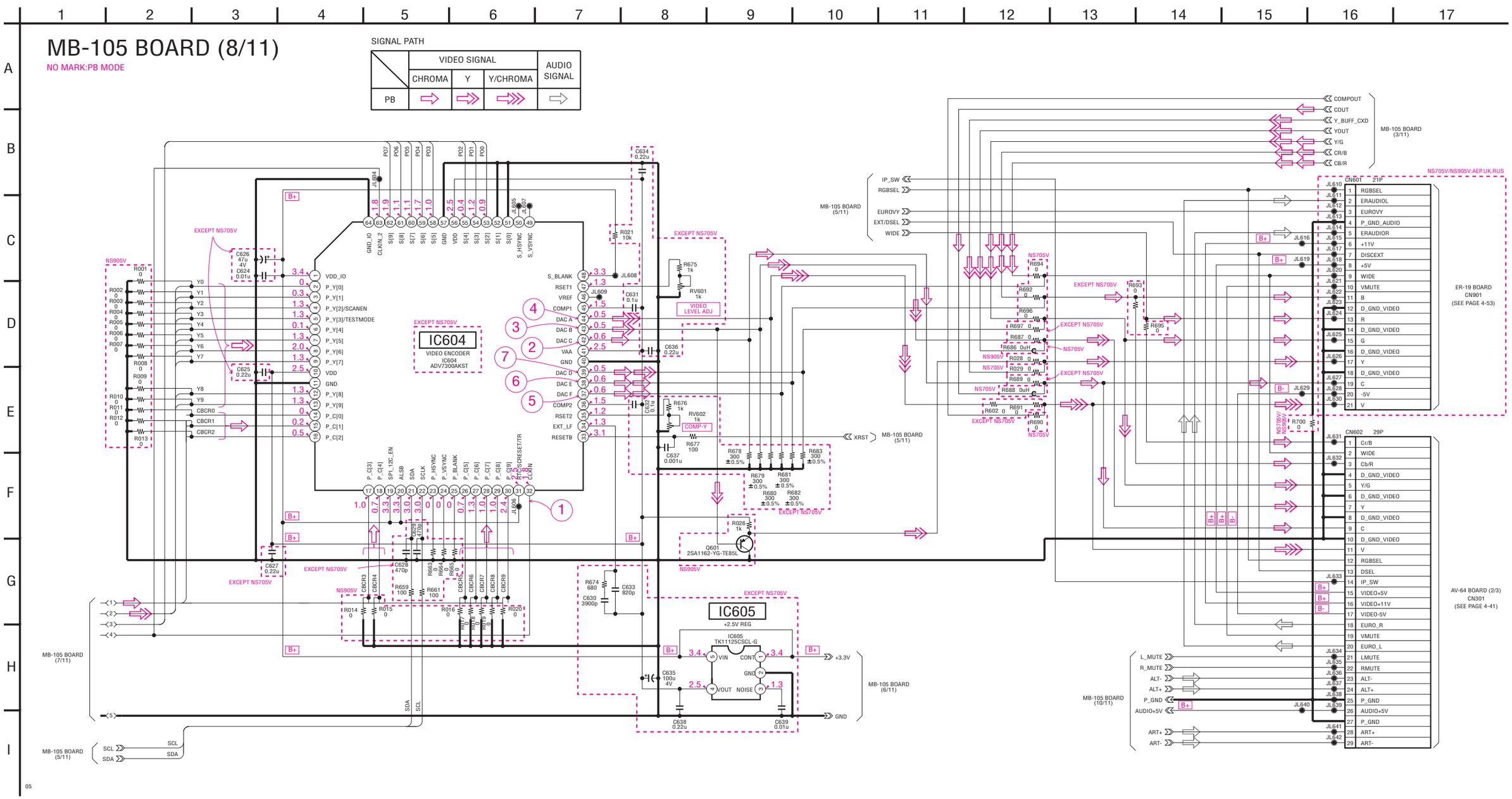
❶ IC602 (183)



1.6 Vp-p (66 MHz)

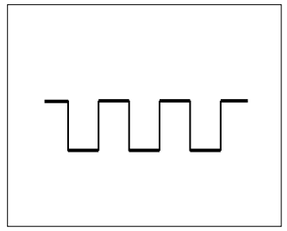
MB-105 (VIDEO ENCODER, AUDIO D/A CONVERTER) SCHEMATIC DIAGRAM **• See page 4-7 for printed wiring board.**

– Ref. No.: MB-105 board; 2,000 series –



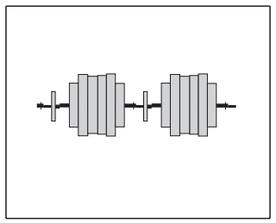
• Waveforms

❶ IC604 ㉜



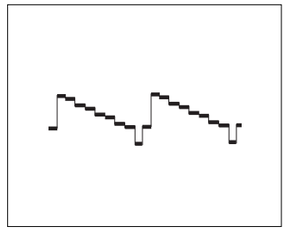
3.9 Vp-p (27 MHz)

❷ IC604 ㊷



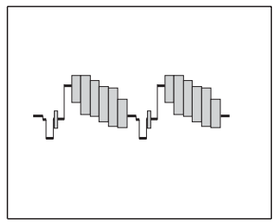
850 mVp-p (H)

❸ IC604 ㊸



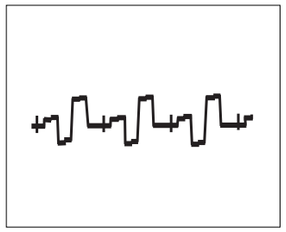
950 mVp-p (H)

❹ IC604 ㊹



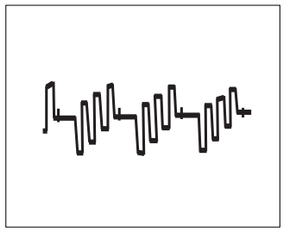
1.1 Vp-p (H)

❺ IC604 ㊲



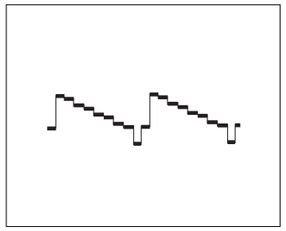
650 mVp-p (H)

❻ IC604 ㊳



650 mVp-p (H)

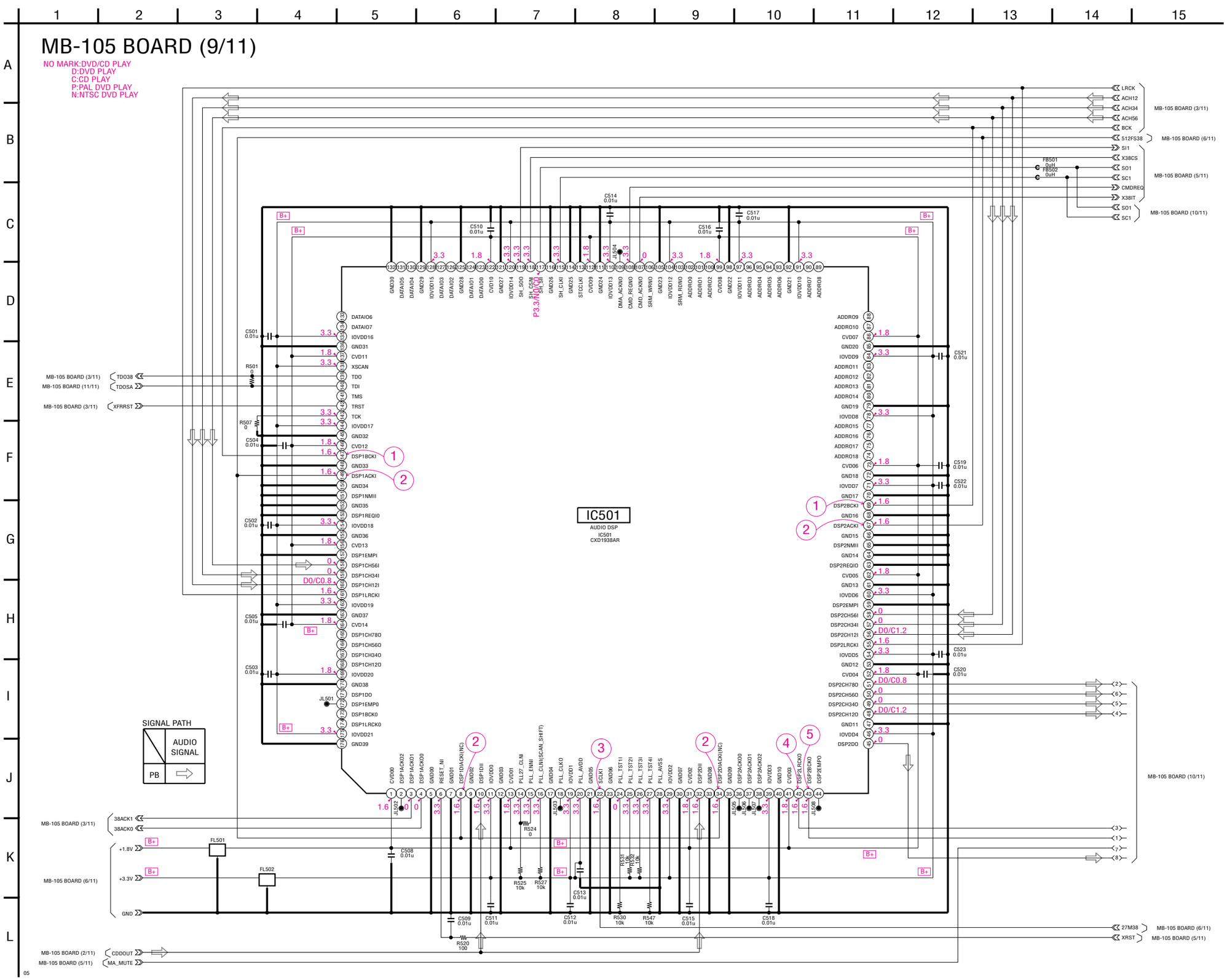
❼ IC604 ㊴



950 mVp-p (H)

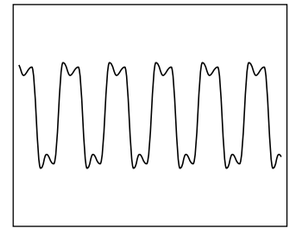
MB-105 (AUDIO DSP) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-105 board; 2,000 series –



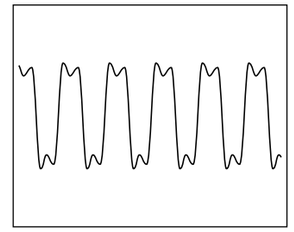
• Waveforms

❶ IC501 ㊾, ㊼



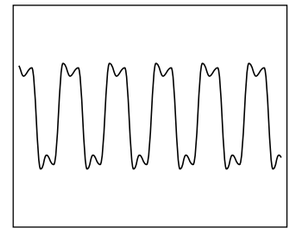
4.1 Vp-p (3.1 MHz)

❷ IC501 ⑧, ㉞, ㊼, ㊾



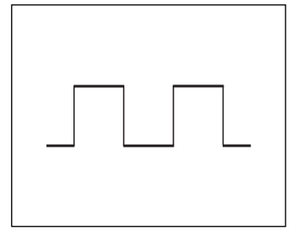
DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)

❸ IC501 ㉒



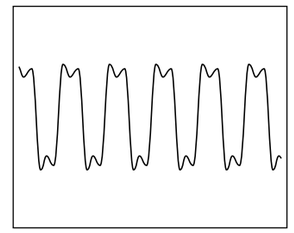
3.5 Vp-p (27 MHz)

❹ IC501 ㊷



DVD: 4.3 Vp-p (48.1 kHz)
CD : 4.3 Vp-p (44.1 kHz)

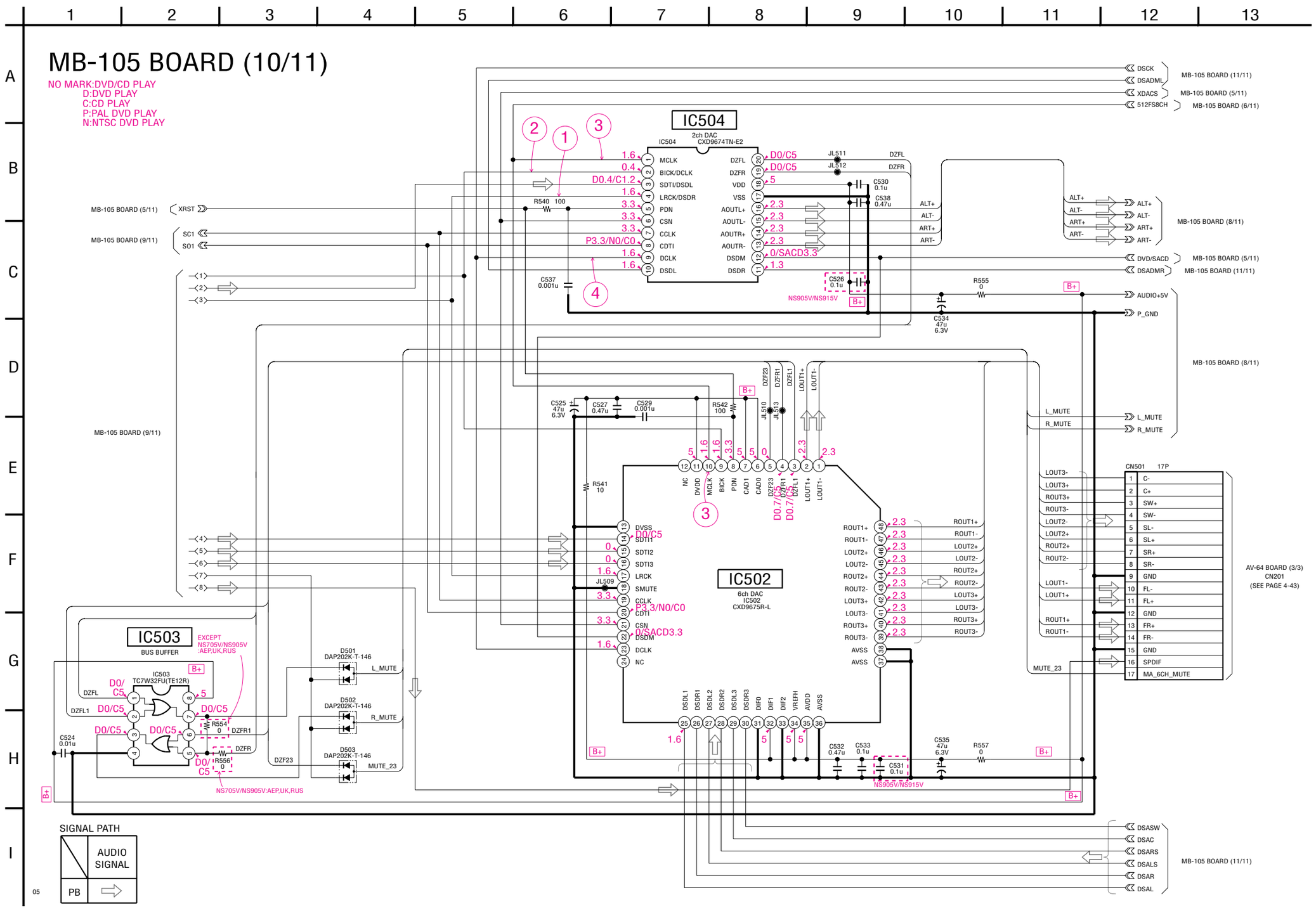
❺ IC501 ㊸



DVD: 4.4 Vp-p (3.1 MHz)
CD : 4.4 Vp-p (2.8 MHz)

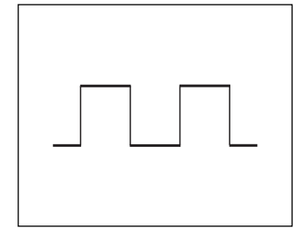
MB-105 (2ch/6ch DAC) SCHEMATIC DIAGRAM **• See page 4-7 for printed wiring board.**

– Ref. No.: MB-105 board; 2,000 series –



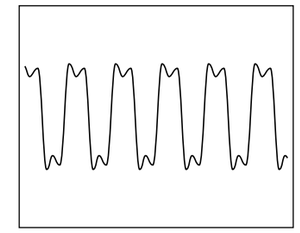
• Waveforms

❶ IC504 ④, IC502 ⑰



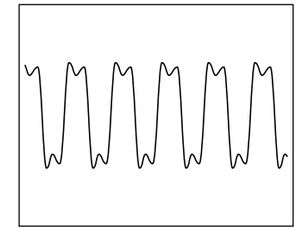
DVD: 4.3 Vp-p (48.1 kHz)
CD : 4.3 Vp-p (44.1 kHz)

❷ IC504 ②, IC502 ⑨



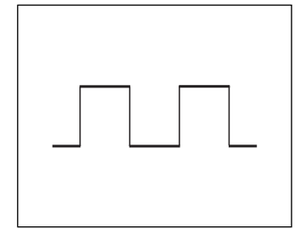
DVD: 4.4 Vp-p (3.1 MHz)
CD : 4.4 Vp-p (2.9 MHz)

❸ IC504 ①, IC502 ⑩



DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)

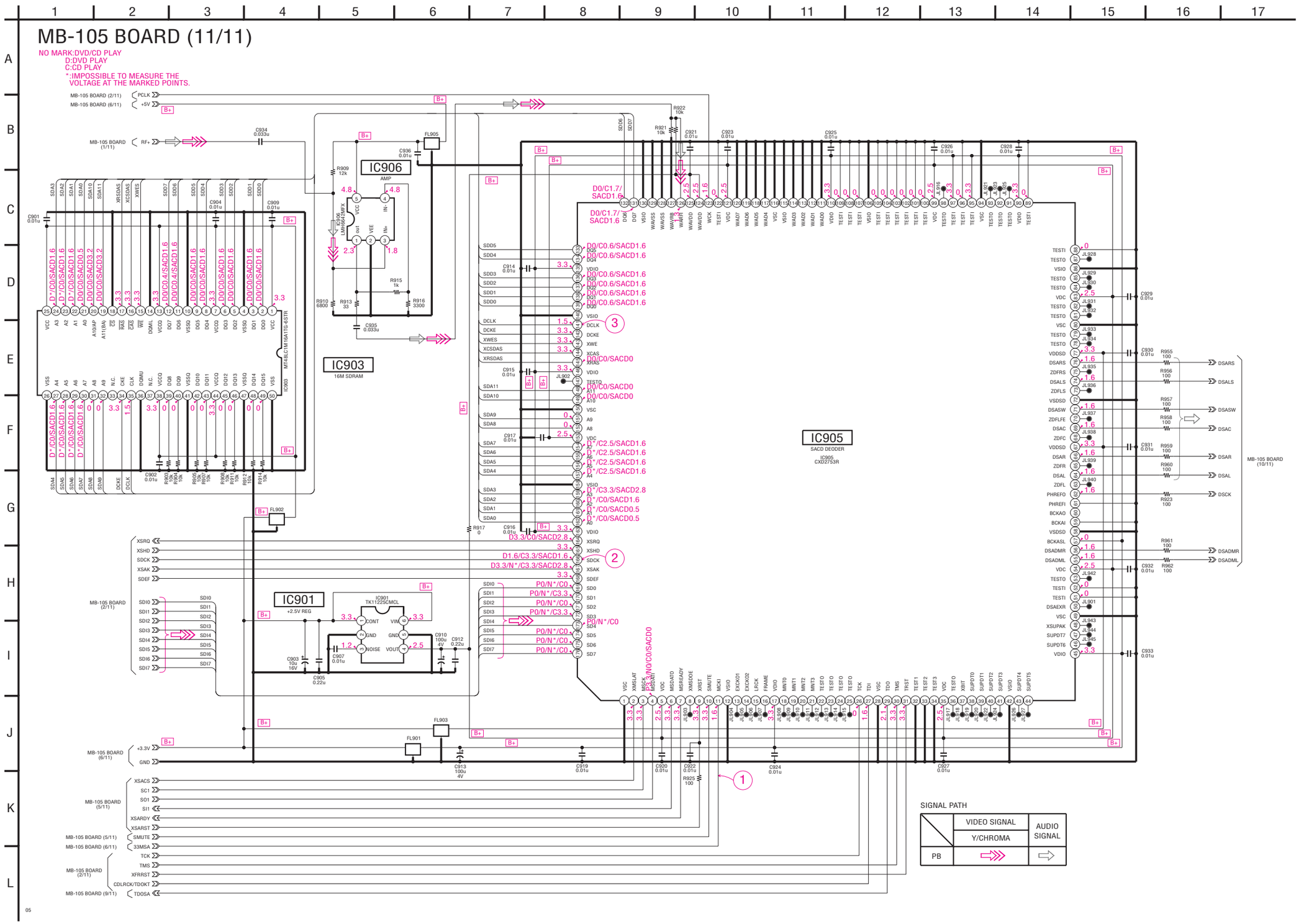
❹ IC504 ⑨



4 Vp-p (2.84 MHz)

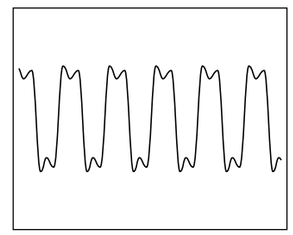
MB-105 (SACD DECODER) SCHEMATIC DIAGRAM • See page 4-7 for printed wiring board.

– Ref. No.: MB-105 board; 2,000 series –



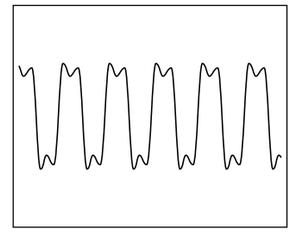
• Waveforms

❶ IC905 ⑪



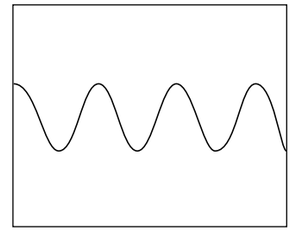
DVD: 3.3 Vp-p (24.57 MHz)
CD: 3.3 Vp-p (22.58 MHz)

❷ IC905 ⑯



4.5 Vp-p (4.2 MHz)

❸ IC905 ⑭

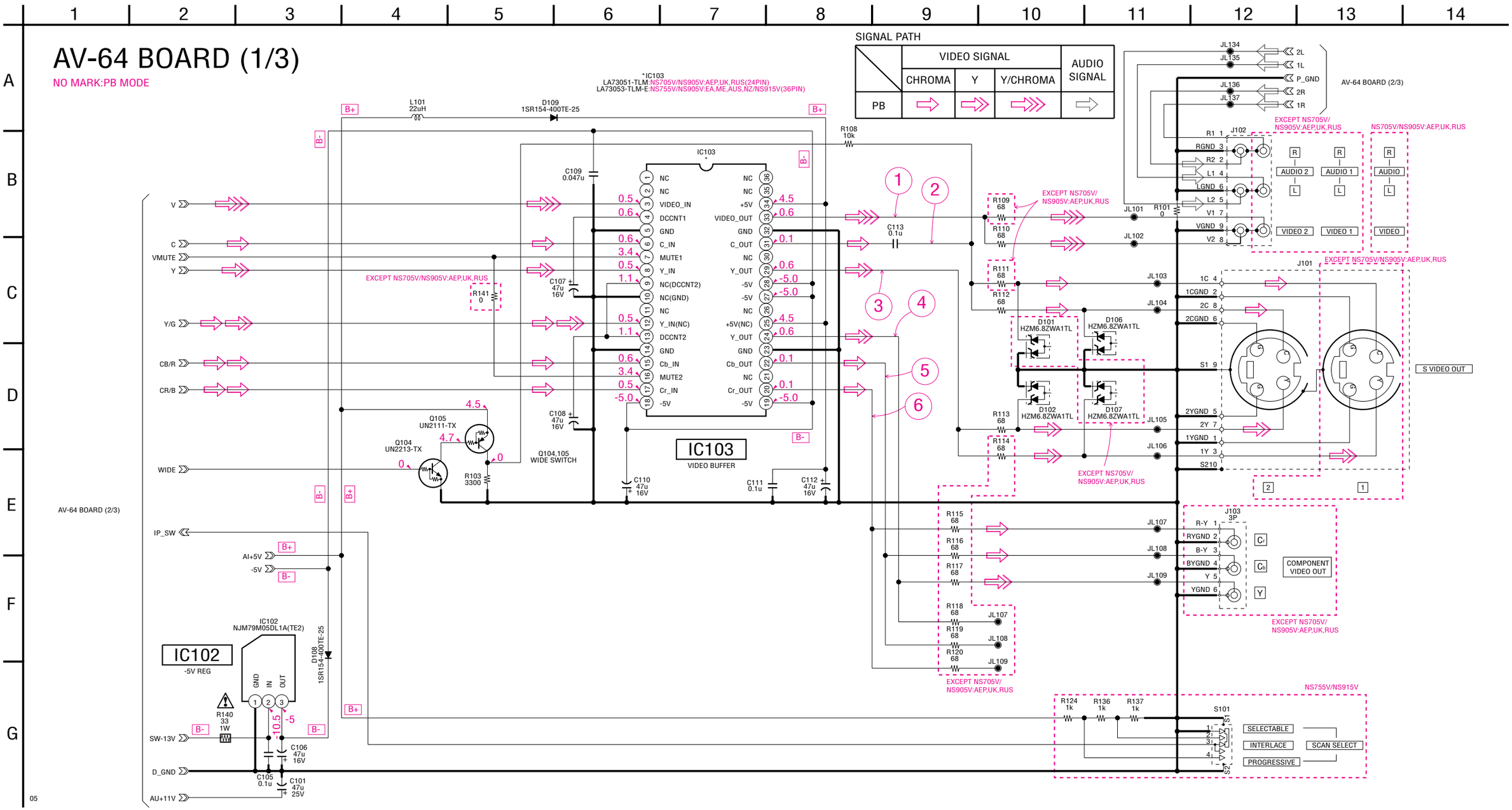


4.9 Vp-p (33.78 MHz)

SACD DECODER
MB-105 (11/11)

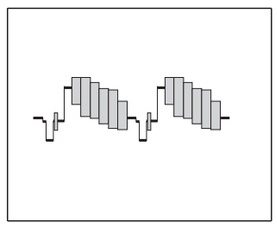
AV-64 (VIDEO BUFFER) SCHEMATIC DIAGRAM • **See page 4-35 for printed wiring board.**
– Ref. No.: AV-64 board; 1,000 series –

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



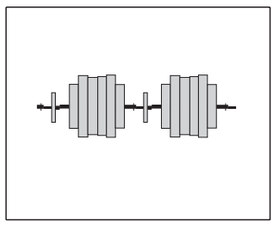
• **Waveforms**

❶ IC103 ㉑ : AEP, UK, RUS
IC103 ㉝ : EXCEPT AEP, UK, RUS



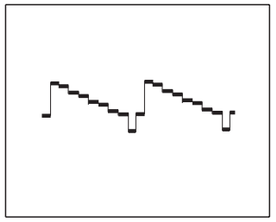
2.4 Vp-p (H)

❷ IC103 ⑲ : AEP, UK, RUS
IC103 ㉛ : EXCEPT AEP, UK, RUS



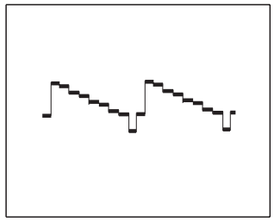
1.8 Vp-p (H)

❸ IC103 ⑰ : AEP, UK, RUS
IC103 ㉙ : EXCEPT AEP, UK, RUS



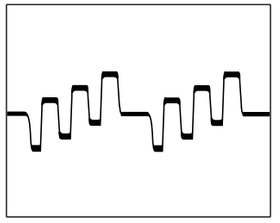
2.0 Vp-p (H)

❹ IC103 ㉔ : EXCEPT AEP, UK, RUS



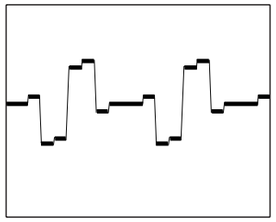
2.0 Vp-p (H)

❺ IC103 ㉒ : EXCEPT AEP, UK, RUS



1.3 Vp-p (H)

❻ IC103 ⑳ : EXCEPT AEP, UK, RUS

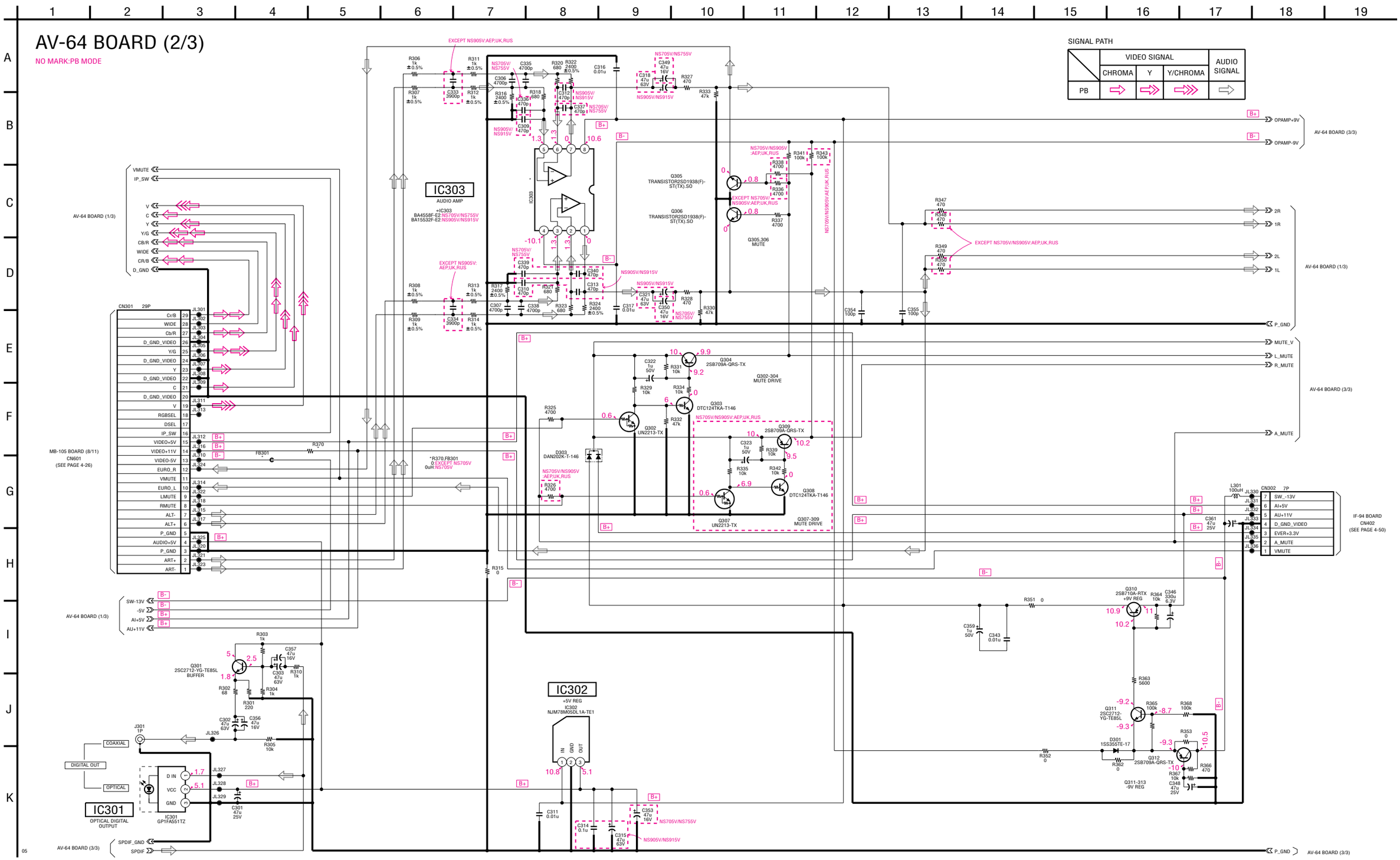


1.3 Vp-p (H)

VIDEO BUFFER
AV-64 (1/3)

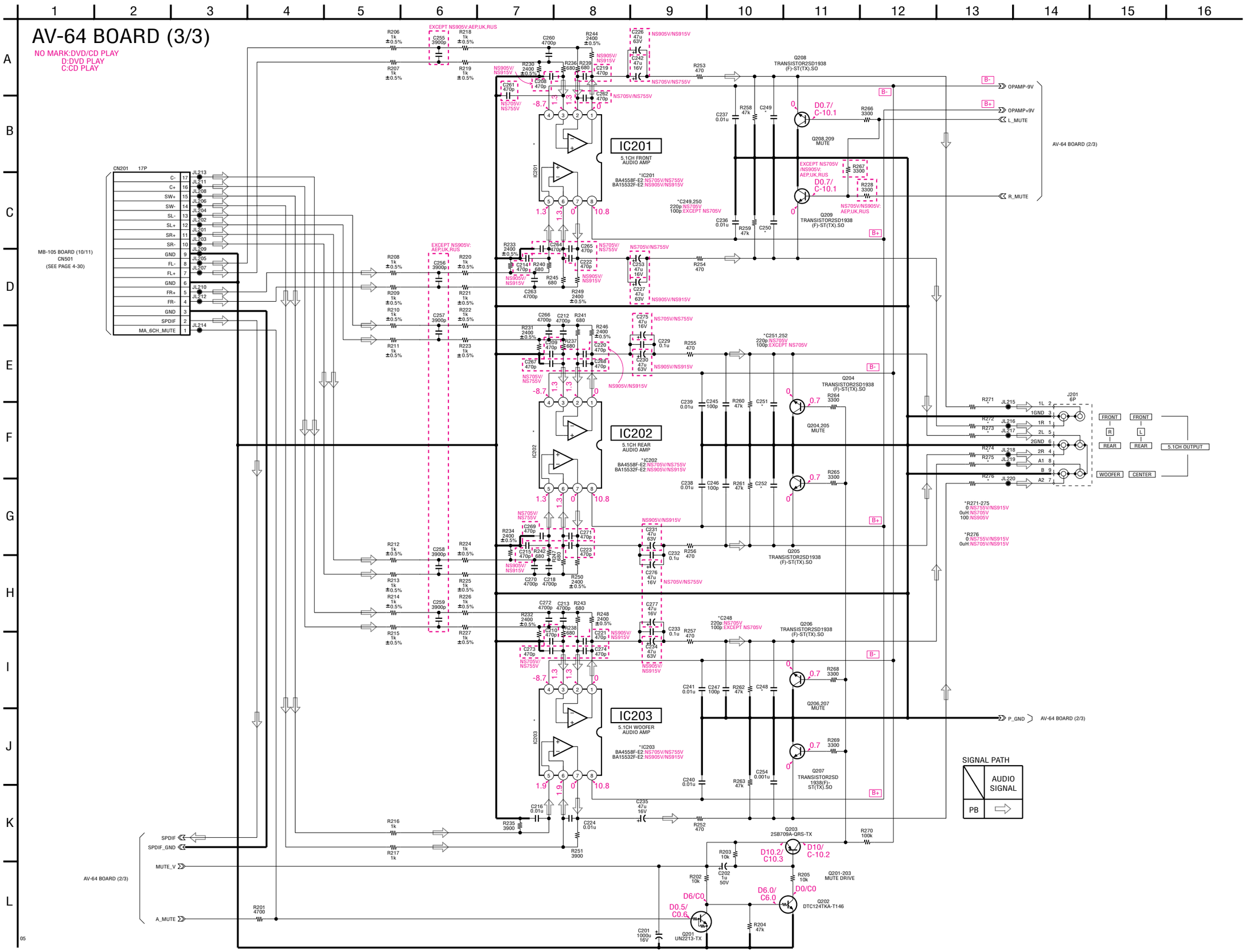
AV-64 (AUDIO AMP) SCHEMATIC DIAGRAM **• See page 4-35 for printed wiring board.**

– Ref. No.: AV-64 board; 1,000 series –



AV-64 (5.1CH AUDIO AMP) SCHEMATIC DIAGRAM **• See page 4-35 for printed wiring board.**

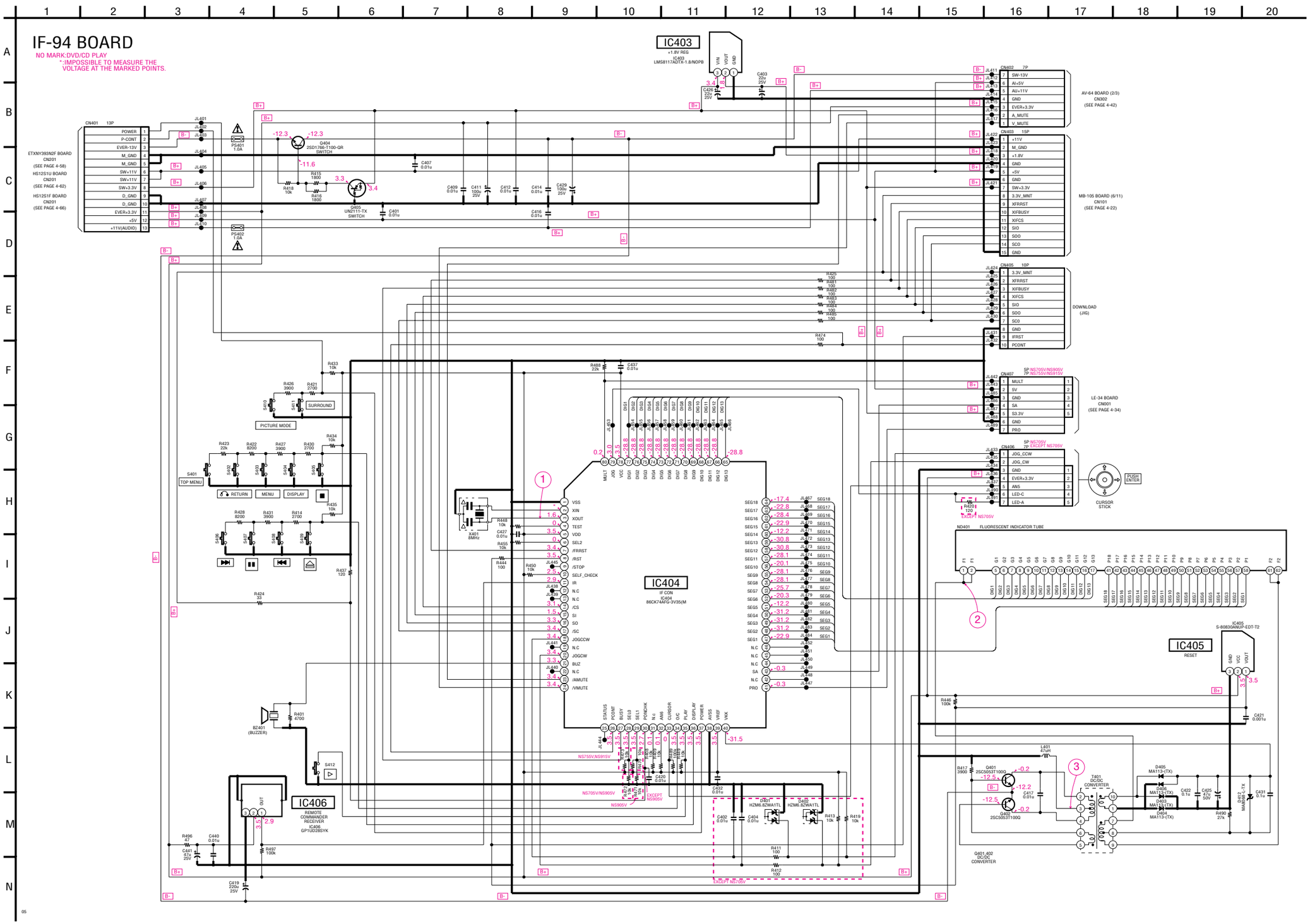
– Ref. No.: AV-64 board; 1,000 series –



5.1CH AUDIO AMP
AV-64 (3/3)

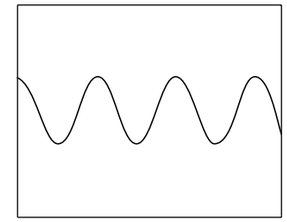
IF-94 (IF CON) SCHEMATIC DIAGRAM

– Ref. No.: IF-94 board; 1,000 series –



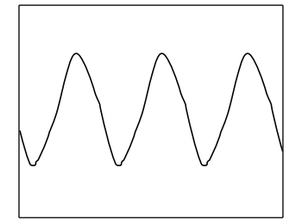
• **Waveforms**

❶ IC404 ③



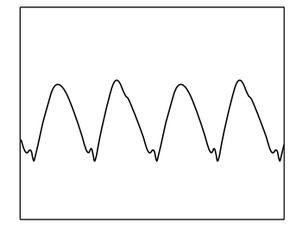
3.4 Vp-p (8 MHz)

❷ ND401 ①, ②



8 Vp-p (200 kHz)

❸ T401 ③



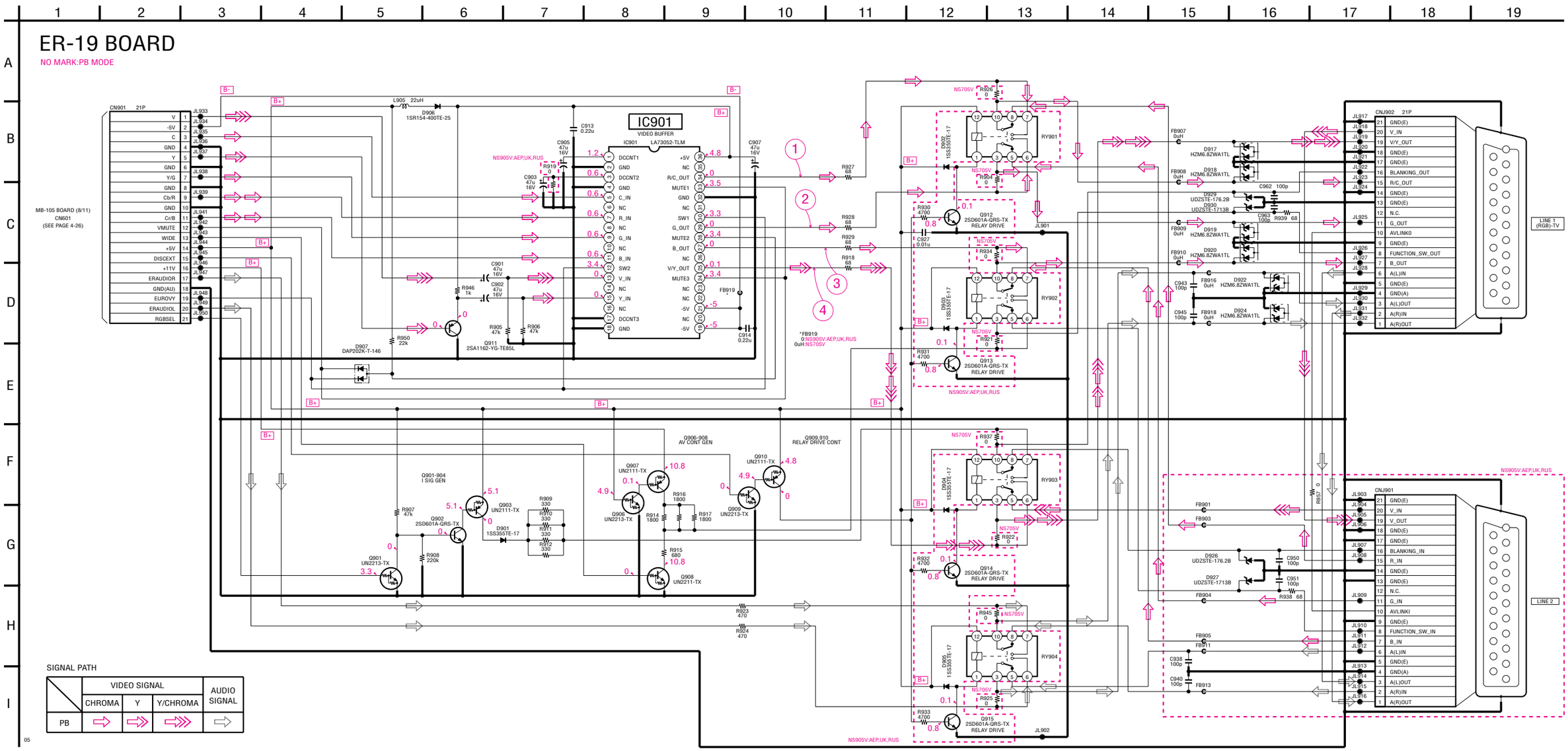
20 Vp-p (409 kHz)

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

ER-19 (EAURO AV) SCHEMATIC DIAGRAM

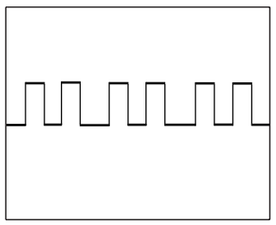
– Ref. No.: EAURO AV board; 4,000 series –

– NS705V/NS905V: AEP, UK, RUS –



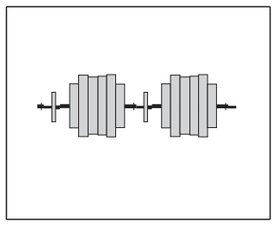
• Waveforms

❶ IC901 ㉞ (LINE : RGB mode)



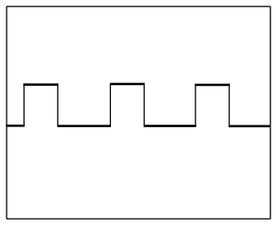
1.4 Vp-p (H)

❶ IC901 ㉞ (LINE : S VIDEO mode)



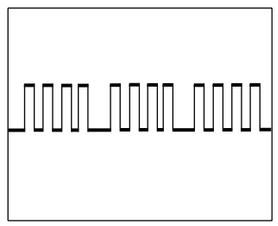
1.7 Vp-p (H)

❷ IC901 ㉙ (LINE : RGB mode)



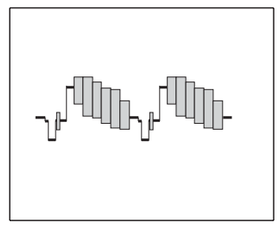
1.4 Vp-p (H)

❸ IC901 ㉗ (LINE : RGB mode)



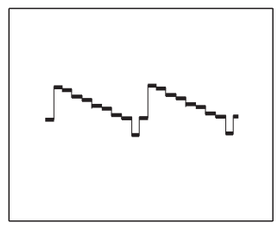
1.4 Vp-p (H)

❹ IC901 ㉕



2.4 Vp-p (H)

❹ IC901 ㉕ (LINE : S VIDEO mode)

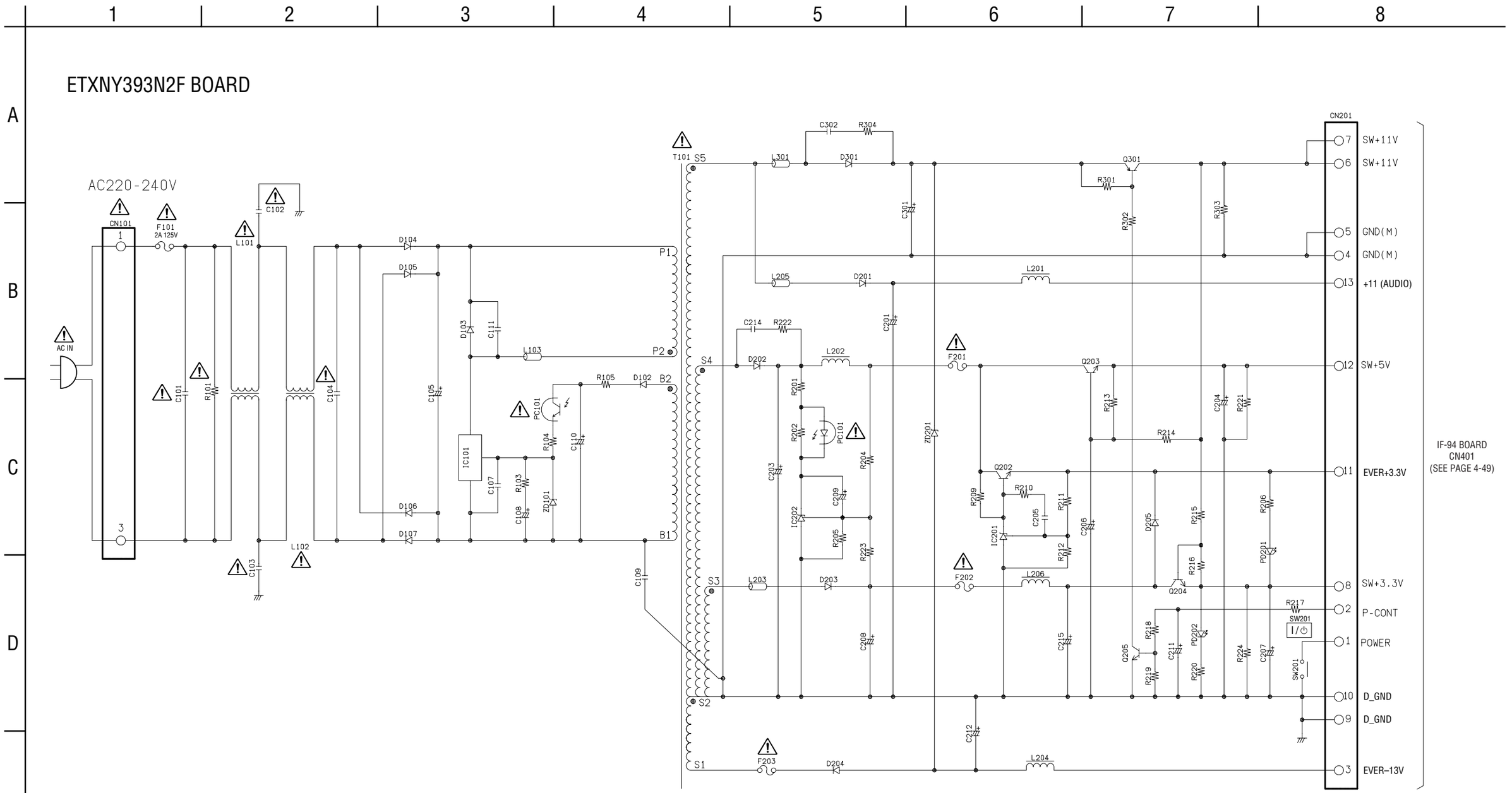


2.0 Vp-p (H)

ETXNY393N2F (SWITCHING REGULATOR) SCHEMATIC DIAGRAM

– Ref. No.: ETXNY393N2F board; 5,000 series –

– NS705V/NS905V/NS915V: HK, SP, MY, TH, PH, IA, VTM, KR –



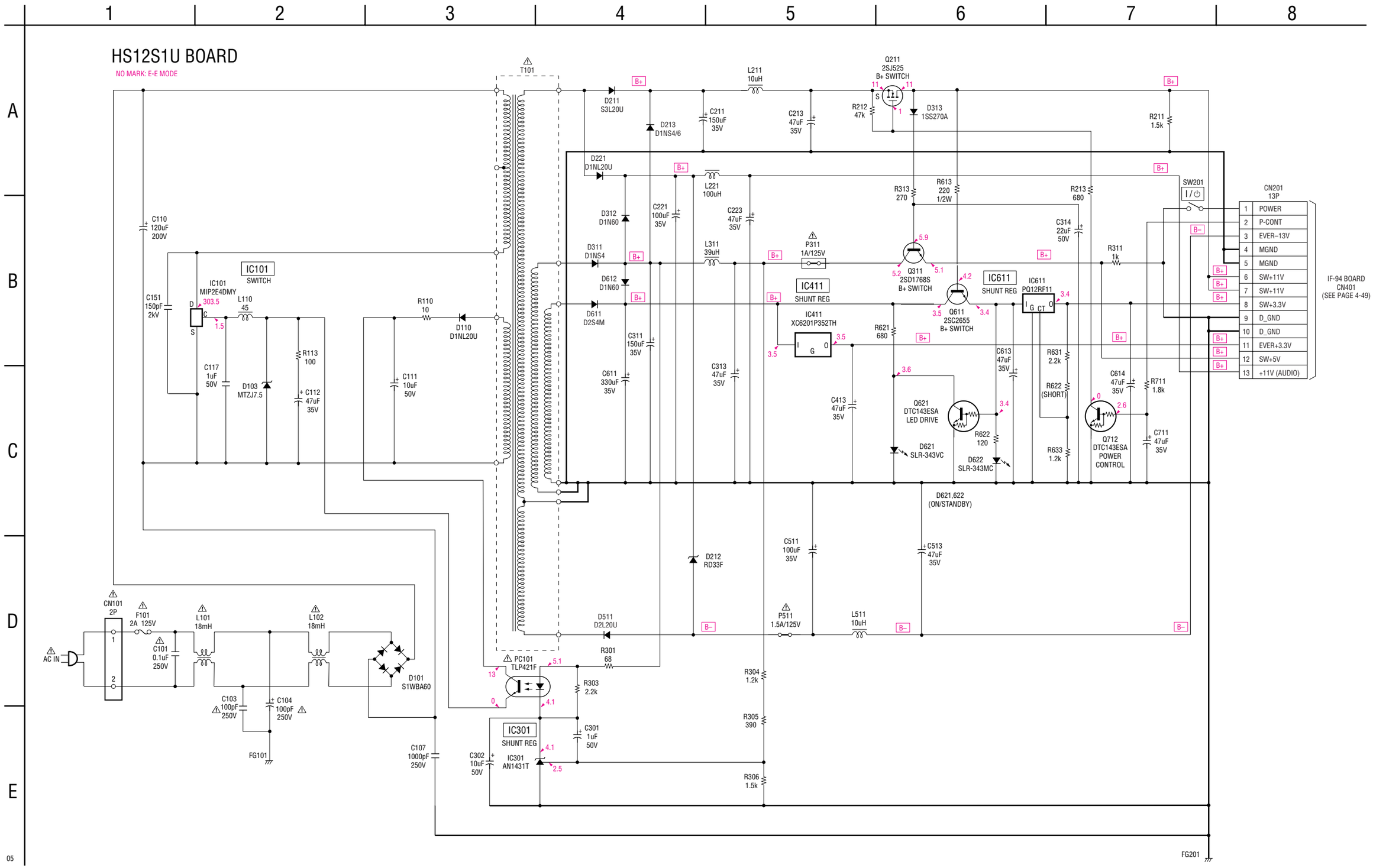
The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

HS12S1U (SWITCHING REGULATOR) SCHEMATIC DIAGRAM **• See page 4-37 for printed wiring board.**

– Ref. No.: HS12S1U board; 5,000 series –

– NS755V/NS915V: TW –

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.

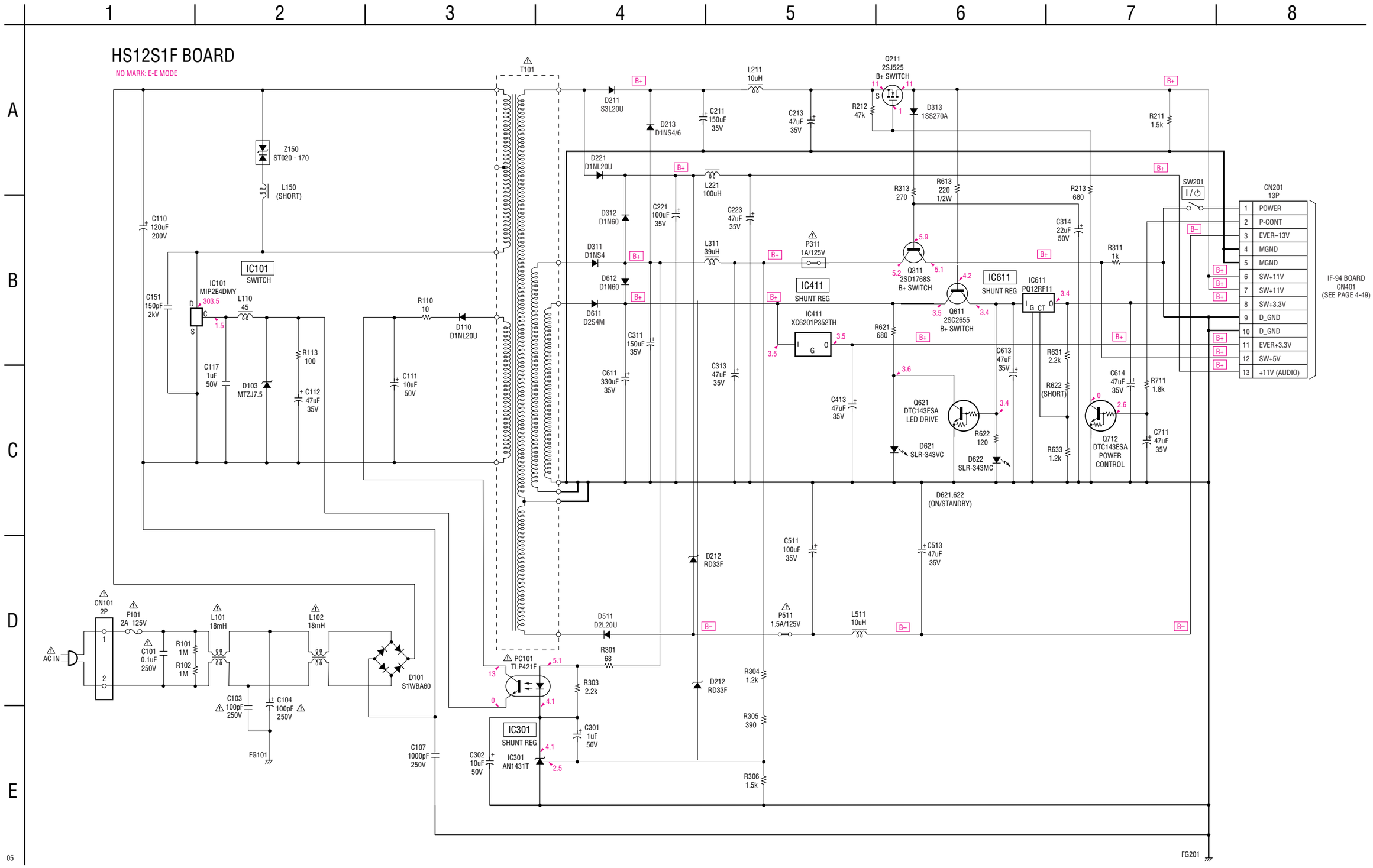


HS12S1F (SWITCHING REGULATOR) SCHEMATIC DIAGRAM **• See page 4-37 for printed wiring board.**

– Ref. No.: HS12S1F board; 5,000 series –

– NS915V: LA –

The components identified by mark ⚠ or dotted line with mark ⚠ are critical for safety. Replace only with part number specified.	Les composants identifiés par une marque ⚠ sont critiques pour la sécurité. Ne les remplacer que par une pièce portant le numéro spécifié.



SECTION 6
TEST MODE

6-1. GENERAL DESCRIPTION

The Test Mode allows you to make diagnosis and adjustment easily using the remote commander and monitor TV. The instructions, diagnostic results, etc. are given on the on-screen display (OSD).

6-2. STARTING TEST MODE

Press the [TOP MENU], [CLEAR], [POWER] keys on the remote commander in this order with the power of main unit in OFF status, and the Test Mode starts, then "DIAG START" will be displayed on the fluorescent display tube and the menu shown below will be displayed on the TV screen. At the bottom of menu screen, the model name and revision number are displayed. Last Off at the lower right of screen indicates the information code concerning the last power off.
To execute each function, select the desired menu and press its number on the remote commander.
To exit from the Test Mode, press the [I/⏻] key.

```
         Test Mode Menu

0. Syscon Diagnosis
1. Drive Auto Adjustment
2. Drive Manual Operation
3. Mecha Aging
4. Emargency Hisory
5. Version Information
6. Video Level Adjustment
                Exit: Power Key
_
Model:DPX-16xxxx
Revision:x.xxx      Last Off: xx
```

Power Off Information Code List

00 : Primary Power Off
01 : Power Off Request from SYSTEM CONTROL
02 : Power Off by Emergency Power Off Command from SYSTEM CONTROL
(if information is sent from SYSTEM CONTROL)
03 : IF CON Judged that SYSTEM CONTROL is Faulty
04 : Power Off from Diagnosis Mode of IF CON
05 : Forced Power Off by the User
06 : Power Off by Power Supply Voltage Monitor

6-3. SYSCON DIAGNOSIS

The same contents as board detail check by serial interface can be checked from the remote commander.
On the Test Mode Menu screen, press [0] key on the remote commander, and the following check menu will be displayed.

```
    ### Syscon Diagnosis ###
          Check Menu
0. Quit
1. All
2. Version
3. Peripheral
4. Servo
5. Supply
6. AV Decoder
7. Video
8. Audio
_
```

0. Quit
Quit the Syscon Diagnosis and return to the Test Mode Menu.

1. All
All items continuous check
This menu checks all diagnostic items continuously. Normally, all items are checked successively one after another automatically unless an error is found, but at a certain item that requires judgment through a visual check to the result, the following screen is displayed for the key entry.

```
    ### Syscon Diagnosis ###

         Diag All Check
          No. 2 Version

 2-3. ROM Check Sum
Check Sum = xxxx


Press NEXT Key to Continue
Press PREV Key to Repeat
_
```

For the ROM Check, the check sum calculated by the Syscon is output, and therefore you must compare it with the specified value for confirmation.
Following the message, press [▶▶I] key to go to the next item, or [I◀◀] key to repeat the same check again. To quit the diagnosis and return to the Check Menu screen, press [■] or [ENTER] key.
If an error occurred, the diagnosis is suspended and the error code is displayed as shown below.

```
    ### Syscon Diagnosis ###



 3-3. EEPROM Check
Error 03: EEPROM Write/Reed N
Address    : 00000001
Write Data : 2492
Read Data  : 2490
Press NEXT Key to Continue
Press PREV Key to Repeat
_
```

Press [■] key to quit the diagnosis, or [I◀◀] key to repeat the same item where an error occurred, or [▶▶I] key to continue the check from the item next to faulty item.

Submenu

Selecting 2 and subsequent items calls the submenu screen of each item.
Indication of "–" in the submenu means the check is not supported with the model.
For example, if "5. Supply" is selected, the following submenu will be displayed.

```
    ### Syscon Diagnosis ###
           Check Menu
          No. 5 Supply
0. Quit
1. All
2. ARP Register Check
3. ARP to RAM Data Bus
4. ARP to RAM Address Bus
5. ARP RAM Check
_
```

0. Quit

Quit the submenu and return to the main menu.

1. All

All submenu items continuous check.
This menu checks 2 and subsequent items successively. At the item where visual check is required for judgment or an error occurred, the checking is suspended and the message is output for key entry. Normally, all items are checked successively one after another automatically unless an error is found.
Selecting 2 and subsequent items executes respective menus and outputs the results.
For the contents of each submenu, see "General Description of Checking Method" and "Check Items List".

General Description of Checking Method

2. Version

(2-2) Revision
ROM revision number is displayed.
Error: Not detected.
The revision number defined in the source file of ROM (IC106 or 107) is displayed with four digits.

(2-3) ROM Check Sum
Check sum is calculated.
Error: Not detected.
8-bit data are added up to the ROM (IC106 or 107) address 0x000F0000 to 0x002EFFFF, and the result is displayed with 4-digit hexadecimal number. Error is not detected. Compare the result with the specified value.

(2-4) Model Type
Model code is displayed.
Error: Not detected.
The model code read from the EEPROM is displayed with 2-digit hexadecimal number.

(2-5) Region
Region code is displayed.
Error: Not detected.
The region code determined from the model code is displayed.

(2-6) Mount resistance confirmation check
Error 22: region code discord.
Accordance between region codes, one is detected with model resistance and destination resistance, and the other is detected with region resistance, is check.
If an error is detected, the region code determined with region resistance is displayed at "write data" and the region code determined with model resistance and destination resistance is displayed at "read data".

3. Peripheral

(3-2) EEPROM Check
Data write → read, and accord check
Error 03: EEPROM write/read discord.
0x9249, 0x2942 and 0x4294 are written to the address 0x00 to 0xFF of the EEPROM and then read for checking. Before writing, the data are saved, then after checking, they are written to restore the contents of EEPROM.

(3-5) SACD check
Device reset → internal organs RAM check
Error 50: Write and read data discord.

(3-6) Venc Check (NS755V/NS915V)
Data write → read, and accord check
Error 52: Write and read data discord.
Accessing to the SYSCON may be defective.

(3-7) ——— (not support)

(3-8) External RAM Check
Test Data write → read, and accord check
Error 02: The external RAM used in the system control is checked.

4. Servo

(4-2) Servo DSP Check
Data write → read, and accord check
Error 12: Read data discord
0x9249, 0x2942 and 0x4294 are written to the RAM address 0x602 of the Servo DSP and then read for checking.
Also, OPT type "1 LASER" or "2 LASER" is displayed.

(4-3) Check is not supported.

(4-4) RF Amp Register Check
Date write → read and accord check
Error 13: RF Amp resister write, and read data discord.
After 0x01 is shifted to register which can read and write RF Amp for 8 bit operation, if write and read data are discord once, the check is performed unsuccessfully.
There may be a single piece of hardware is defective, mounted imperfect or not mounted.

5. Supply

(5-2) ARP Register Check
Data write → read, and accord check
Error 08: ARP register write, and read data discord
Data 0x00 to 0xFF is written sequentially to the ARP TMAX register (address 0xC6) and then read for checking.

(5-3) ARP to RAM Data Bus
Data write → read, and accord check
Error 09: ARP ←→ RAM data bus error
Data 0x0001 to 0x8000 where one bit each is set to 1 are written to the address 0 of RAM (IC303) connected to the ARP (IC301) through the bus, then they are read and checked. In case of discord, written bit pattern and read data are displayed. If data where multiple bits are 1 are read, the bits concerned may touch each other. Further, if data where certain bit is always 1 or 0 regardless of written data, the line could be disconnected or shorted.

(5-4) ARP to RAM Address Bus
Data write → other address read discord check
Error 10: ARP ←→ RAM address bus error
Caution: Address and data display in case of an error is different from the display of other diagnosis (described later).
Before starting the test, all addresses of RAM (IC303) are cleared to 0x0000.
First, 0xA55A is written to the address 0x00000, and the address data are read and checked from addresses 0x00001 to 0x80000 while shifting 1 bit each. Next, the data at that address is cleared, and it is written to the address 0x00001, and read and checked in the same manner. This check is repeated up to the address 0x80000 while shifting the address data by 1 bit each.
If data other than 0 is read at the addresses except written address, an error is given because all addresses were already cleared to 0. In this check, the error display pattern is different from that of other diagnosis; read data, written address, and read address are displayed in this order. However, the message uses same template, and accordingly exchange Address and Data when reading. The following display, for example,

```
    ### Syscon Diagnosis ###



 5-4. ARP to RAM Address Bus
Error 10: ARP - RAM Address B
Address    : 0000A55A
Write Data : 00000000
Read Data  : 00080000
Press NEXT Key to Continue
Press PREV Key to Repeat
_
```

shows the data 0xA55A was read from address 0x00080000 though it was written to the address 0x00000000. This implies that these addresses are in the form of shadow. Also, if the read data is not 0xA55A, another error will be present.

(5-5) ARP RAM Check
Data write → read, and accord check
Error 11: ARP RAM read data discord
The program code data stored in ROM are copied to all areas of RAM (IC303) connected to the ARP (IC301) through the bus, then they are read and checked if they accord. If the detail check was selected initially, the data are written to all areas and read, then the same test is conducted once again with the data where all bits are inverted between 1 and 0. If discord is detected, faulty address, written data, and read data are displayed following the error code 11, and the test is suspended.

6. AV Decoder

(6-2) 1935 RAM
Data write → read, and accord check
Error 14: AVD RAM read data discord
The program code data stored in ROM (IC106 or 107) are copied to all areas of RAM (IC404, IC406) connected to the AVD (IC403) through the bus, then they are read and checked if they accord. Further, the same test is conducted once again with the data where all bits are inverted between 1 and 0. If discord is detected, faulty address, written data, and read data are displayed following the error code 14, and the test is suspended.
During the test, OSD display becomes blank as the OSD area is also checked.

(6-3) 1935 SP
ROM → AVD RAM → Video OUT
Error: Not detected.
The data including sub picture streams in ROM (IC106 or IC107) are transferred to the RAM (IC404, IC406) in AVD (IC403), and output as video signals from the AVD (IC403). Though OSD display becomes blank, the output of video signals continues until the key is pressed.
They are output from all video terminals (Composite, Y/C, Component) except EURO AV terminal.

7. Video

(7-2) Color Bar
AVD color bar command write → Video OUT
Error: Not detected.
The command is transferred to the AVD, and the color bar signals are output from video terminals.
They are output from all video terminals (Composite, Y/C, Component) except EURO AV terminal.

(7-3) Composite Out (AEP, UK, RUS Model)
EURO-AV Composite video output check
AVD color bar command write → Video (EURO-AV Composite) OUT
Error: Not detected.
With the Component of video output turned off, the color bar signals are output from the EURO-AV terminal.

(7-4) Y/C Out (AEP, UK, RUS Model)
EURO-AV Y/C video output check
AVD color bar command write → Video (EURO-AV Y/C) OUT
Error: Not detected.
With the Y/C of video output turned on, the color bar signals are output from the EURO-AV terminal.

(7-5) RGB Out (AEP, UK, RUS Model)
EURO-AV RGB video output check
AVD color bar command write → Video (EURO-AV RGB) OUT
Error: Not detected.
With the RGB of video output turned on, the color bar signals are output from the EURO-AV terminal.

(7-6) Component Out (AEP, UK, RUS Model)
EURO-AV Component video output check
AVD color bar command write → Video (EURO-AV Component) OUT
Error: Not detected.
With the Component of video output turned on, the color bar signals are output from the EURO-AV terminal.

(7-7) Euro AV Through (AEP, UK, RUS Model)
AV Through output On/Off
Error: Not detected.
AV Through output is turned on.

8. Audio

(8-2) ARP → 1935
Error 15 : ARP → 1935 video NG
16 : ARP → 1935 audio NG

(8-3) Test Tone
Pink noise output
Error: not detected
Test tone is output, from only L and R2 channels of the model without DD output function, and from Ls and Rs of two channels of DD model.
After setting all outputs to ON, check for each channel is performed individually by pressing [▶▶I] to switch the output channel.

Check Items List

2) Version
(2-2) Revision
(2-3) ROM Check Sum
(2-4) Model Type
(2-5) Region
(2-6) M't Check

3) Peripheral
(3-2) EEPROM Check
(3-5) SACD Check
(3-6) Venc Check (NS755V/NS915V)
(3-7) Not support
(3-8) External RAM check

4) Servo
(4-2) Servo DSP Check
(4-3) ———— (function not support)
(4-4) RF Amp Register Check

5) Supply
(5-2) ARP Register Check
(5-3) ARP to RAM Data Bus
(5-4) ARP to RAM Address Bus
(5-5) ARP RAM Check

6) AV Decoder
(6-2) 1935 RAM
(6-3) 1935 SP

7) Video
(7-2) Color Bar
(7-3) Composite Out (AEP, UK, RUS Model)
(7-4) Y/C Out (AEP, UK, RUS Model)
(7-5) RGB Out (AEP, UK, RUS Model)
(7-6) Component Out (AEP, UK, RUS Model)
(7-7) Euro AV Through (AEP, UK, RUS Model)

8) Audio
(8-2) ARP → 1935
(8-3) Test Tone

Error Codes List

00: Error not detected
01: RAM write/read data discord
03: EEPROM NG
04: Flash memory clear error
05: Flash memory write error
06: Flash memory read data discord
08: ARP register read data discord
09: ARP ←→ RAM data bus error
10: ARP ←→ RAM address bus error
11: ARP RAM read data discord
12: Servo DSP NG
13: RF Amp NG
14: SDRAM NG
15: ARP → 1935 video NG
16: ARP → 1935 audio NG
19: 1901UCODE Download NG
1A: System call error (function not supported)
1B: System call error (parameter error)
1C: System call error (illegal ID number)
20: System call error (time out)
22: Resistance incorrect mounting
50: SACD Decoder W/R NG
52: Video Encoder W/R NG
55: External RAM W/R NG
90: Error occurred
91: User verification NG
92: Diagnosis cancelled.

6-4. DRIVE AUTO ADJUSTMENT

On the Test Mode Menu screen, press [1] key on the remote commander, and the drive auto adjustment menu will be displayed.

```
   ## Drive Auto Adjustment ##

         Adjustment Menu

0. ALL
1. DVD-SL
2. CD
3. DVD-DL
4. LCD



                   Exit: RETURN
```

Normally, [0] is selected to adjust DVD (single layer), CD, DVD (dual layer) in this order. But, individual items can be adjusted for the case where adjustment is suspended due to an error. In this mode, the adjustment can be made easily through the operation following the message displayed on the screen. Which disc is currently adjusted is displayed on the fluorescent display tube.
The disc used for adjustment must be the one specified for adjustment.

0. ALL

You will be asked if EEPROM data are initialized or not, and for this prompt, select [0] and press the [ENTER] key. First , the servo setting data in EEPROM, Emergency History and Hour Meter are cleared to initialize. Then, 1. DVD-SL disc, 2. CD disc, and 3. DVD-DL disc are adjusted in this order. Each time one disc was adjusted, it is ejected, and therefore exchange the disc following the message. You can exit the adjustment by pressing the [■] button. In adjusting each disc, the mirror time is measured to check the disk type. In the auto adjustment, whether the disc type is correct is not checked unlike conventional models, and accordingly, take care not to insert a different type of disc.

1. DVD-SL (single layer)

Select [1], insert DVD single layer disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Single Layer Disc Adjustment Steps

1. Sled Reset
2. Disc Check Memory SL
3. Set Disc Type SL
4. Spdl Start
5. LD ON
6. Focus Error Check
7. Focus ON 0 with PI Level Musure
8. Auto Track Offset Adjust L0
9. Trv Level Check
10. Tracking ON
11. CLVA ON
12. Sled ON
13. Auto Focus Balance Adjust
14. Auto Loop Filter Offset Adjust
15. Auto Focus Gain Adjust L0
16. Auto Focus Balance Adjust L0
17. EQ Boost Adjust
18. Auto Loop Filter Offset Adjust
19. Auto Track Gain Adjust
20. RF Level Measure
21. Jitter Measure
22. Eep Copy Loop Filter Offset
23. All Servo Stop

2. CD

Select [2], insert CD disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

CD Adjustment Steps

1. Sled Reset
2. Disc Check Memory CD
3. Set Disc Type CD
4. Spdl Start
5. LD ON
6. Focus Error Check
7. Fcs ON 0 with PI Level Mesure
8. Auto Track Offset Adjust L0
9. Trv Level Check
10. Tracking ON
11. CLVA ON
12. Sled ON
13. Auto focus Blance Adjust
14. Auto Loop Filter Offset Adjust
15. Auto Focus Gain Adjust L0
16. Auto Focus Balance Adjust L0
17. Eq Boost Adjust
18. Auto Loop Filter Offset Adjust
19. Auto Track Gain Adjust
20. Copy Adjustment Data to LCD
21. RF Level Measure
22. Jitter Measure
23. All Servo Stop

3. DVD-DL (dual layer)

Select [3], insert DVD dual layer disc, and press [ENTER] key, and the adjustment will be made through the following steps, then adjusted values will be written to the EEPROM.

DVD Dual Layer Disc Adjustment Steps

1. Sled Reset
2. Disc Check Memory DL
3. Set Disc Type DL
   DVD DL Layer 1 Adjust
4. Spdl Start
5. LD ON
6. Fcs ON 1 with PI Level Mesure
7. Auto Track Offset Adjust L1
8. Tracking ON
9. Clva ON
10. Sled ON
11. Auto Focus Balance Adjust
12. Auto Focus Gain Adjust L1
13. Auto Focus Balance Adjust L1
14. Eq Boost Adjust L1
15. Auto Track Gain Adjust L1
16. Jitter Measure
    DVD DL Layer 0 Adjust
17. Focus Jump (L1 → L0)
18. Auto Track Offset Adjust L0
19. Tracking ON
20. Clva ON
21. Sled ON
22. Auto Focus Balance Adjust
23. Auto Focus Gain Adjust L0
24. Auto Focus Balance Adjust L0
25. Eq Boost Adjust L0
26. Auto Track Gain Adjust L0
27. Jitter Measure
28. All Servo Stop

4. LCD (SACD)

No adjustments, because the adjusted data of CD are reflected to LCD disc and the adjusted data of CD and DVD-DL are reflected to SACD (hybrid disc).

6-5. DRIVE MANUAL OPERATION

On the Test Mode Menu screen, select [2], and the manual operation menu will be displayed. For the manual operation, each servo on/off control and adjustment can be executed manually.

```
  ## Drive Manual Operation ##

         Operation Menu
1. Disc type
2. Servo Control
3. Track/Layer Jump
4. Manual Adjustment
5. Auto Adjustment
6. Memory Check

0. Disc Check Memory

                 Exit: RETURN
```

In using the manual operation menu, take care of the following points. These commands do not provide protection, thus requiring correct operation. The sector address or time code field is displayed when a disc is loaded.

1. Set correctly the disc type to be used on the Disc Type screen.
   The disc type must be set after a disc was loaded.
   The set disc type is cleared when the tray is opened.
2. After power ON, if the Drive Manual Operation was selected, first perform “Reset SLED TILT” by opening 1. Disc Type screen.
3. In case of an alarm, immediately press the [■] button to stop the servo operation, and turn the power OFF.

Basic operation (controllable from front panel or remote commander)

[I/⏻]	Power OFF
[■]	Servo stop
[⏏]	Stop+Eject/Loading
[↩ RETURN]	Return to Operation Menu or Test Mode Menu
[▶▶I], [I◀◀]	Transition between sub modes of menu
[1] to [9], [0]	Selection of menu items
Cursor [↓] / [↑]	Increase/Decrease in manually adjusted value

0. Disc Check Memory

```
           Disc Check



1. SL Disc Check
2. CD Disc Check
3. DL Disc Check



0. Reset SLED TILT
```

On this screen, the mirror time is measured and written to the EEPROM to check the disc type. First, set a DVD SL disc and press [1], then set a CD disc and press [2], and finally set a DVD DL disc and press [3]. The measured mirror time is displayed respectively.
The adjustment must be executed more than once after default data were written.
From this screen, you can go to another mode by pressing [▶▶I] or [I◀◀] key, but you cannot enter this mode from another mode. You can enter this mode from the Operation Menu screen only.

1. Disc Type

```
           Disc Type
Disc Type
1. Disc Type Auto Check
2. DVD SL   12cm
3. DVD DL   12cm
4. CD       12cm
5. SACD     12cm
6. DVD SL   8cm
7. DVD DL   8cm
8. CD       8cm
9. LCD      8cm
0. Reset SLED TILT
                          EMG. 00
```

On this screen, select the disc type. To select the disc type, press the number of the loaded disc. The selected disc type is displayed at the bottom. Selecting [1] automatically selects and displays the disc type. In case of wrong display, retry “Disc Check Memory”. Also, opening the tray causes the set disc type to be cleared. In this case, set the disc type again after loading.
In performing manual operation, the disc type must be set.
Once the disc type has been selected, the sector address or time code display field will appear as shown below. These values are displayed when PLL is locked.

```
           Disc Type
1. Disc Type Auto Check
2. DVD SL     12cm
3. DVD DL     12cm
4. CD         12cm
5. SACD       12cm
6. DVD SL      8cm
7. DVD DL      8cm
8. CD          8cm
9. LCD         8cm
0. Reset SLED TILT
SA.------ SI.-- EMG.00
DVD SL 12cm
```

Display when DVD SL 12cm disc was selected

```
          Disc Type
1. Disc Type Auto Check
2. DVD SL     12cm
3. DVD DL     12cm
4. CD         12cm
5. SACD       12cm
6. DVD SL      8cm
7. DVD DL      8cm
8. CD          8cm
9. LCD         8cm
0. Reset SLED TILT
           TC. --:--:-- EMG.00
CD            12cm
```

Display when CD 12cm disc was selected

[0] Reset SLED TILT	Reset the Sled and Tilt to initial position.(This model does not have Tilt device, so reset only the Sled to initial position.)
[1] Disc Type Check	Judge automatically the loaded disc. As the judged result is displayed at the bottom of screen, make sure that it is correct. If Disc Check Memory menu has not been executed after EEPROM default setting, the disc type cannot be judged. In this case, return to the initial menu and make a check for three types of discs (SL, DL, CD).
[2] to [9]	Select the loaded disc. The adjusted value is written to the address of selected disc. No further entry is necessary if [1] was selected.

2. Servo Control

```
         Servo Control
1. LD        Off R. Sled FWD
2. SP        Off L. Sled REV
3. Focus     Off
4. TRK.      Off
5. Sled      Off
6. CLVA      Off
7. FCS. Srch Off


0. Reset SLED TILT
       SA.------ SI.-- EMG. 00
DVD SL 12 cm
```

On this screen, the servo on/off control necessary for replay is executed. Normally, turn on each servo from 1 sequentially and when CLVA is turned on, the usual trace mode becomes active. In the trace mode, DVD sector address or CD time code is displayed. This is not displayed where the spindle is not locked.
The spindle could run overriding the control if the spindle system is faulty or RF is not present. In such a case, do not operate CLVA.

[0] Reset SLED TILT	Reset the Sled and Tilt to initial position.(This model does not have Tilt device, so reset only the Sled to initial position.)
[1] LD	Turn ON/OFF the laser.
[2] SP	Turn ON/OFF the spindle.
[3] Focus	Search the focus and turn on the focus.
[4] TRK	Turn ON/OFF the tracking servo.
[5] Sled	Turn ON/OFF the sled servo. If PLL is not locked (or can not be locked), the sled servo does not be turned ON. (Indication remains as OFF)
[6] CLVA	Turn ON/OFF normal servo of spindle servo.
[7] FCS. Srch	Apply same voltage as that of focus search to the focus drive to check the focus drive system.
[→] Sled FWD	Move the sled outward. Perform this operation with the tracking servo turned off.
[←] Sled REV	Move the sled inward. Perform this operation with the tracking servo turned off.

3. Track/Layer Jump

```
      Tracking/Layer Jump
1. 1Tj FWD    R. Fj (L1 → L0)
2. 1Tj REV    L. Fj (L0 → L1)
3. 2Tj FWD    U. Lj (L1 → L0)
4. 2Tj REV    D. Lj (L0 → L1)
5. NTj FWD
6. NTj REV
7. 500Tj FWD
8. 500Tj REV
9. 10k/20k FWD
0. 10k/20k REV
       SA.------ SI.-- EMG. 00
DVD SL 12 cm
```

On this screen, track jump, etc. can be performed. Only for the DVD-DL, the focus jump and layer jump are displayed in the right field.

[1] 1Tj FWD	1-track jump forward.
[2] 1Tj REV	1-track jump reverse.
[3] 2Tj FWD	2-track jump forward.
[4] 2Tj REV	2-track jump reverse.
[5] NTj FWD	N-track jump forward.
[6] NTj REV	N-track jump reverse.
[7] 500Tj FWD	Fine search forward.
[8] 500Tj REV	Fine search reverse.
[9] 10k/20k FWD	Direct search forward.
[0] 10k/20k REV	Direct search reverse.

– The following commands are valid for DVD-DL disc only –

[→] Fj (L1 → L0)	Focus jump forward. (Trk/Sled Servo OFF)

← Fj (L0 → L1)	Focus jump reverse. (Trk/Sled Servo OFF)
↑ Lj (L1 → L0)	Layer jump forward. (Trk/Sled Servo ON)
↓ Lj (L0 → L1)	Layer jump reverse. (Trk/Sled Servo ON)

4. Manual Adjustment

```
   Manual Adjustment:Up/Down
1. TRK. Offset
2. Focus Gain
3. TRK. Gain
4. Focus Offset
5. Focus Balance
6. L.F. Offset
7. Analog FRSW
8. PLL Dac Gain
9. EQ BOOST
0. GD ADJ
Adjustment: Up/Down
      SA. ------ SI. -- EMG. 00
DVD SL 12cm            Jitter FF
```

On this screen, each item can be adjusted manually. Select the desired number 1 to 0 from the remote commander, and current setting for the selected item will be displayed, then increase or decrease numeric value with ↑ key or ↓ key. This value is stored in the EEPROM. If CLV has been applied, the jitter is displayed for reference for the adjustment.

1 TRK. Offset	Adjusts tracking offset.
2 Focus Gain	Adjusts focus gain.
3 TRK. Gain	Adjusts track gain.
4 Focus Offset	Adjusts focus offset.
5 Focus Balance	Adjusts focus balance.
6 L.F. Offset	Adjusts loop filter offset.
7 Analog FRSW	Sets the shifting switch for analog feedback circuit.
8 PLL Dac Gain	Adjusts PLL D/A converter gain.
9 EQ BOOST	Adjusts amount of boost of equalizer.
0 GD ADJ	Adjusts amount of group delay

5. Auto Adjustment

```
        Auto Adjustment
1. Auto TRK. Offset
2. Auto Focus Balance
3. Auto Focus Offset
4. Auto Focus Gain
5. Auto TRK. Gain
6. Auto EQ
7. Auto L.F. Offset
8. Auto Group Delay


SA.------ SI.-- EMG. 00
DVD SL 12 cm
```

On this screen, each item can be adjusted automatically. Select the desired number 1 to 8 from the remote commander, and selected item is adjusted automatically.

1 Auto TRK. Offset	Adjusts tracking offset.
2 Auto Focus Balance	Adjusts focus balance.
3 Auto Focus Offset	Adjusts focus offset.
4 Auto Focus Gain	Adjusts focus gain.
5 Auto TRK. Gain	Adjusts track gain.
6 Auto EQ	
7 Auto L.F. Offset	Adjusts loop filter offset.
8 Auto Group Delay	

6. Memory Check

Display images are shown as follows, and all three screens are able to switch.

```
EEPROM DATA 1          -- DL --
             CD LCD   SL  L0  L1
Focus Gain    xx xx   xx  xx  xx
TRK. Gain     xx xx   xx  xx  xx
FCS Balnce    xx xx   xx  xx  xx
Focus Bias    xx xx   xx  xx  xx
TRV Offset    xx xx   xx  xx  xx
L.F. Offset   xx xx   xx  xx  xx
EQ. Boost     xx xx   xx  xx  xx
_
UP    : Last Data
DOWN  : Next Data
CLEAR : Default Set     page.1/3
```

```
EEPROM DATA 2          -- DL --
             CD LCD   SL  L0  L1
RF Jitter     xx --   xx  xx  xx
RF Level      xx --   xx  --  --
FE Level      xx --   xx  --  --
FE Balance    xx --   xx  --  --
TRV.Level     xx --   xx  --  --
TE Gain       xx xx   --  --  --
PI Level      xx --   xx  xx  --
_
UP    : PREV Data
DOWN  : Next Data
CLEAR : Default Set     page.2/3
```

```
EEPROM DATA 3          -- DL --
             CD LCD   SL  L0  L1
Analog FRSW  xx xx    xx  xx  xx
PLL Dac Gain xx xx    xx  xx  xx
Mirror Time  xx xx    xx  xx  xx

_  THR A&L   xx xx  xx/xx xx  xx
UP   : PREV Data
DOWN : First Data
CLEAR: Default Set      page.3/3
```

On this screen, current servo adjusted data stored in the EEPROM are displayed. The adjusted data are initialized by pressing the [CLEAR] key, but be careful that they are not recoverable after initialization.
Before clearing the adjusted data, make a note of the set data. This screen will also appear if [0] All is selected in the Drive Auto Adjustment. In this case, default setting cannot be made.
Data of "THR A & L" on page 3/3 can not be changed if default set is done.

6-6. MECHA AGING

```
      ### Mecha Aging ###



Press OPEN key



Abort: STOP key
```

On the Test Mode Menu screen, selecting [3] executes the aging of mechanism. First, open the tray and load a disc. Press the [▷] key, and the aging will start. During aging, the repeat cycle is displayed. Aging can be aborted at any time by pressing the [■] key. After the operation has stopped, unload the disc and press again the [■] key or the [↶ RETURN] key to return to the Test Mode Menu.

6-7. EMERGENCY HISTORY

```
      ### EMG. History ###

Laser Hours      CD   xxhxxm
                 DVD  xxhxxm

 1. 00 00 00 00 00 00 00 00
    00 00 00 00 00 00 00 00

 2. 00 00 00 00 00 00 00 00
    00 00 00 00 00 00 00 00

Select: 1-9      Scroll: UP/DOWN
(1: Last EMG.)   Exit: RETURN
```

On the Test Mode Menu screen, selecting [4] displays the information such as servo emergency history. The history information from last 1 up to 10 can be scrolled with [↑] key or [↓] key. Also, specific information can be displayed by directly entering that number with ten keys.

The upper two lines display the laser ON total hours. Data below minutes are omitted.

Clearing History Information

◎ Clearing laser hours
Press [DISPLAY] and [CLEAR] keys in this order.
Both CD and DVD data are cleared.

◎ Clearing emergency history
Press [TOP MENU] and [CLEAR] keys in this order.

◎ Initializing set up data
Press [MENU] and [CLEAR] keys in this order.
The data have been initialized when "Set Up Initialized" message is displayed. The EMG. History screen will be restored soon.

6-8. VERSION INFORMATION

```
   ### Version Infomation ###

IF con.      Ver.x.xxx(xxxx)
             Group    xx

SYScon.      Ver.x.xxx(xxxx)
             Model    xx
             Region   0x

 Servo DSP Ver: x.xxx
 AVD ucode Ver: xxxxxxxx
 OPT TYPE : x LASER
Exit : RETURN
```

The ROM version, region code, OPT type, etc. are displayed if [5] is selected in the Test Mode Menu.
The parenthesized hexadecimal number in the version number field indicates the checksum value of the ROM.

Note : After down loading ROM data, sometimes it happens that checksum is not the same as that of ROM data which has been down loaded. In such a case, go back to the menu and select “0. Syscon Diagnosis”, then select “1. All” in “2. Version”. If the result of this operation does not give an agreement, it must be either Down Load error or ROM error.

6-9. VIDEO LEVEL ADJUSTMENT

On the Test Mode Menu screen, selecting [6] displays color bars for video level adjustment. During display of color bars, OSD disappears but the menu screen will be restored if pressing any key.

6-10. IF CON SELF DIAGNOSTIC FUNCTION

1. IF-94 BOARD (IF CON) TEST MODE

The front board test mode is the IF CON self diagnostic mode. The IF CON can diagnose the functions of the front panel boards that the IF CON controls. Normally, the IF CON makes a serial communication with the SYSTEM CONTROL and operates following the commands from the SYSTEM CONTROL, but in the Test mode, the IF CON operates independently from the SYSTEM CONTROL.

In the Test mode, the following functions can be checked.
1. Button function
2. Remote commander receiving function
3. SYSTEM CONTROL-IF CON serial communication
4. Click shuttle function
5. Fluorescent display tube lighting check
   Grid check
   Anode check
6. LED control function

In the Test mode, the set operates same as usual, except voltage monitoring, communication monitoring, display of fluorescent display tube, and LED control.
1. The routine that monitors +3.3 V (P-CONT) of MB-105 board is not provided.
2. The monitoring timer for serial communication with the SYSTEM CONTROL is not provided. The set is not placed in the Standby mode, even if the communication with SYSTEM CONTROL is normal.
3. Display of fluorescent display tube (normally, display is made following the commands from SYSTEM CONTROL)
4. LED control (normally, control is made following the commands from SYSTEM CONTROL)

2. OPERATION OF SELF CHECK MODE

The Self Check mode is the function to conduct the basic test to the FL display and DVD panel section.

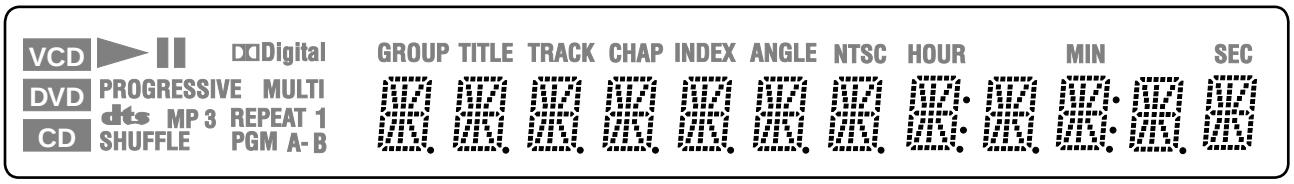
2-1. Self Check Mode Transition Processing

At the AC Power ON after IF CON (IC404) was reset, the input to 10pin (SELF CHECK) is judged and if “Low” is entered, the main unit transits to the Self Check mode. In this port input judgment, the result of 3-time attempts must be same (assuming that the MB-105 and AV-64 boards are not connected). While pressing the [■] key on the main unit with the IF CON in STANDBY mode, enter [↶ RETURN] → [DISPLAY] (or [SET UP]) on the remote commander, and the unit transits to the Self Check Mode. The Self Check mode terminates when the IF CON transits to the STANDBY mode.

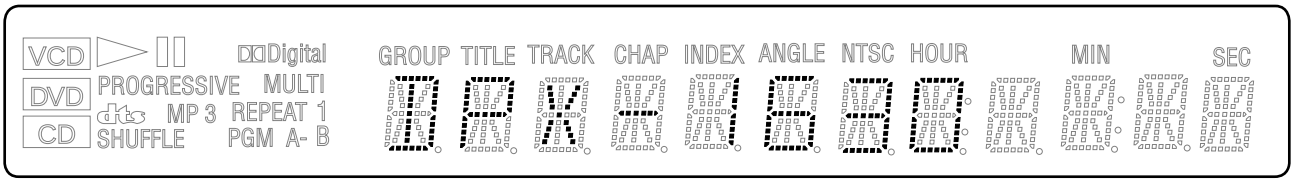
2-2. Operation of Auto Self Check

When the Self Check mode becomes active at the AC Power ON or by key input, the test display of the following steps (1) to (4) is repeated.

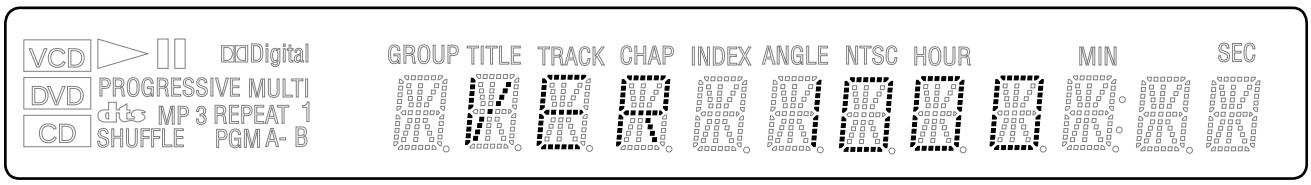
(1) FLD and LED all ON (for 5 seconds)



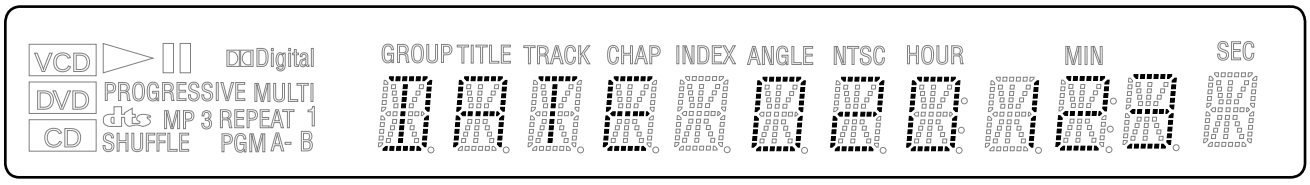
(2) MODEL display (for 2 seconds)



(3) Version display (for 2 seconds)



(4) ROM creation date display (for 2 seconds)



2-3. Each Self Check Function

Each Self Check function tests the FLD display, LED display, and key input.

Input Voltage [V]	IC404: Pin No. (Signal)				
	Pin ㉝ (CURSOR)	Pin ㉞ (O/C)	Pin ㉟ (PLAY)	Pin ㊱ (DISPLAY)	Pin ㊲ (POWER)
0 – 0.2	ENTER	OPEN/CLOSE	PLAY	STOP	POWER
0.6 – 0.82	DOWN	PREVIOUS	–	DISPLAY	TVS
1.16 – 1.47	LEFT	PAUSE	–	MENU	PVEQ
1.8 – 2.12	UP	NEXT	–	RETURN	–
2.48 – 2.7	RIGHT	–	–	TOP MENU	–
3.3	–	–	–	–	–

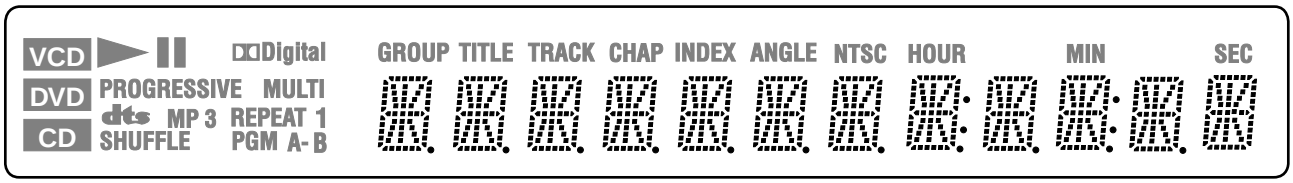
2-3-1. FLD and LED All ON

2-3-1-1. Transition Keys in Self Check Mode

- ■ key and ⏏ key on the main unit
- ← key on the main unit and the remote commander

2-3-1-2. Operation and Display

In this mode, all LEDs except STANDBY LED and all segments of FLD turn ON.
Example of FLD all ON



2-3-2. Main Unit Key Name Display and Key Code Display

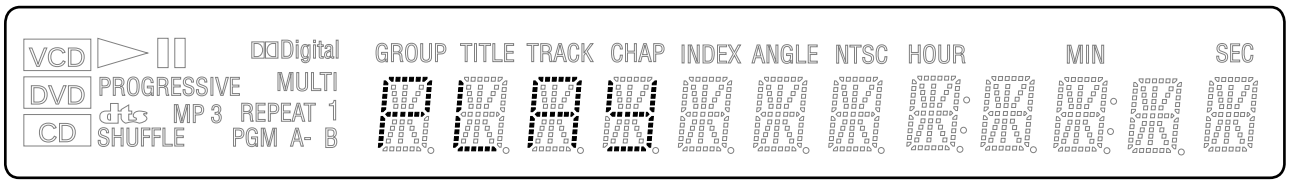
2-3-2-1. Transition Keys in Self Check Mode

- Keys on main unit except keys transited in self check

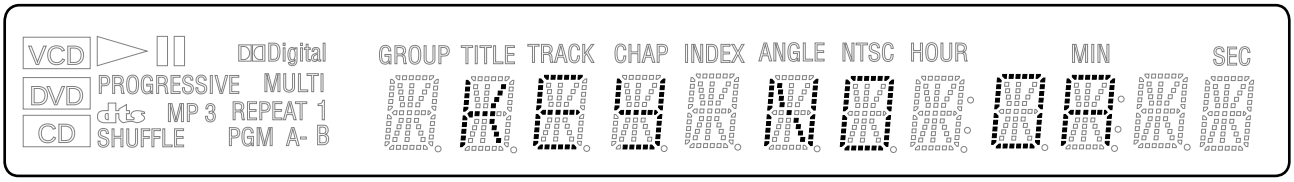
2-3-2-2. Operation and Display

When a key on the main unit is pressed in the Self Check mode, the name of that key is displayed on the FLD. Also, the key name display and the key code display can be switched with the DISPLAY key on the remote commander. “NOTHING” is displayed when nothing is entered. Also, VIDEO CD, DVD, and CD segments turn on when a communication error occurred.

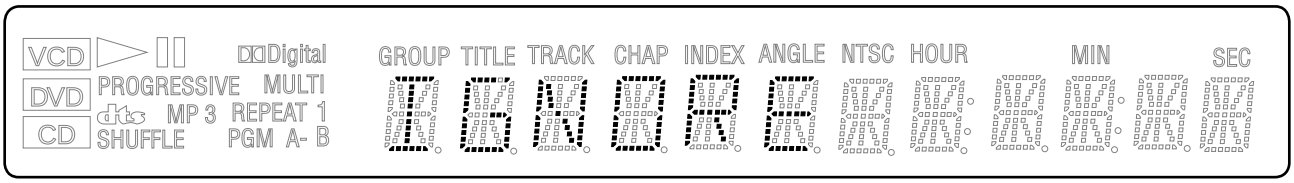
FLD display (at input of ▷ key on the main unit)



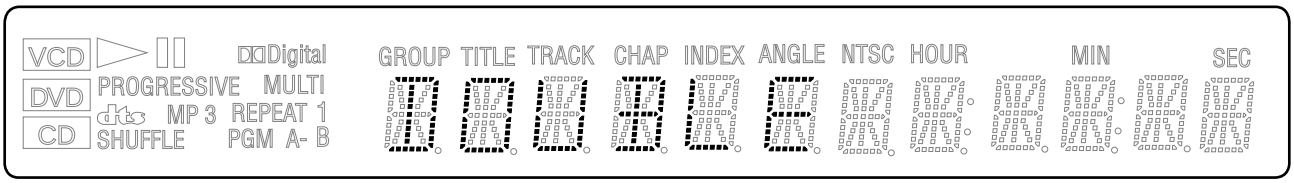
Key code display (at input of ▷ key, Key code: 0Ah)



At input of faulty voltage



When two keys are pressed



2-3-3. Remote Commander Key Name Display and Key Code Display

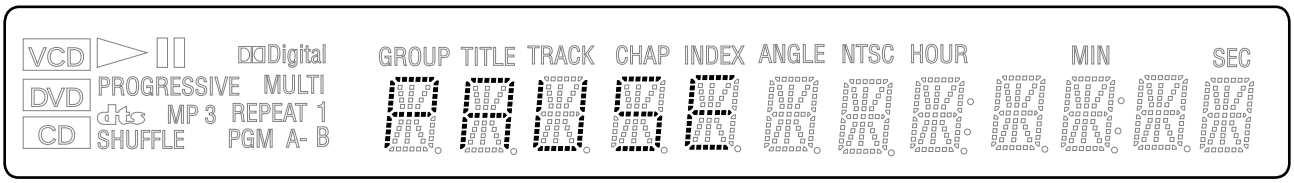
2-3-3-1. Transition Keys in Self Check Mode

- Remote commander keys except keys transited in self check

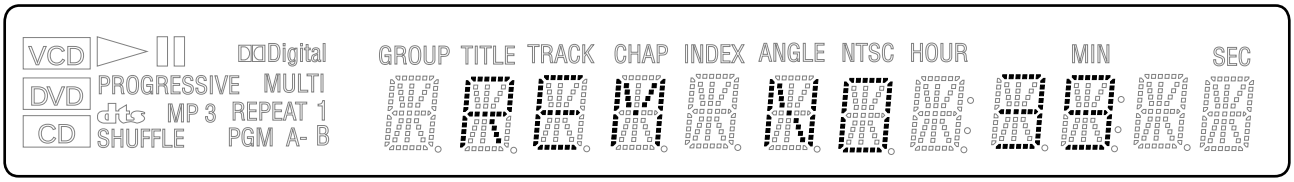
2-3-3-2. Operation and Display

When a key on the remote commander is pressed in the Self Check mode, the name of that key is displayed on the FLD. Also, the key name display and the key code display can be switched with the DISPLAY key on the remote commander. “NOTHING” is displayed when nothing is entered. Also, VIDEO CD, DVD, and CD segments turn on when a communication error occurred.

Remote commander key name display (at input of ❚❚ key)



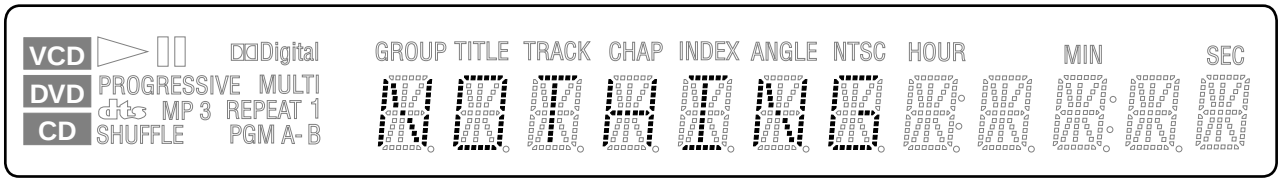
Remote commander key code display (at input of ❚❚ key, Key code: 39h)



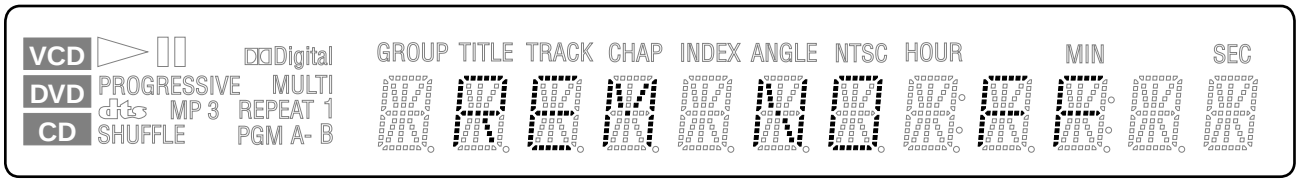
2-3-4. Communication Monitoring Display

The communication state is monitored and displayed while the key name on the main unit and the remote commander is displayed. When the communication to the System Controller failed, VIDEO CD, DVD, and CD segments turn on.

Communication error display (at no key input)



Communication error display (at code display without input of the remote commander)



2-3-5. FLD Anode Test Display and SHUTTLE Click Operation Test

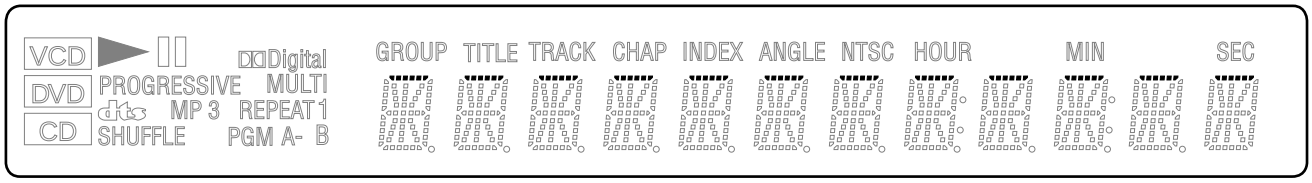
2-3-5-1. Transition Keys in Self Check Mode

- [→] on the main unit and the remote commander
- SHUTTLE on the remote commander during Anode Test display
  (This model does not provide JOG/SHUTTLE, and therefore use another DVD remote commander having the JOG/SHUTTLE)

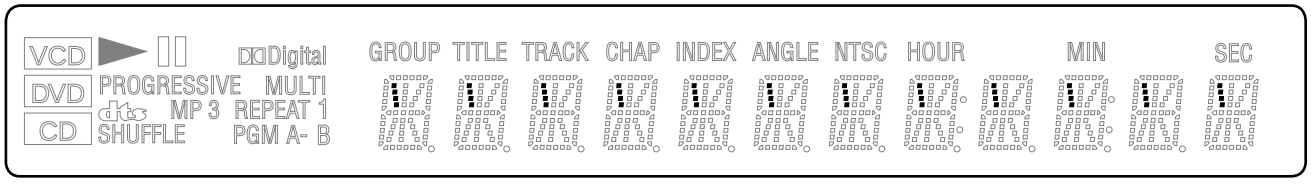
2-3-5-2. Operation and Display

The Self Check mode transits to this mode when [→] key is entered. Only the first segment of each grid of FLD turns on, and each time the SHUTTLE is entered, the segment of each grid is switched in order. When SHUTTLE input is clockwise, the segment switches in 1 → 2 → 3 direction, or counterclockwise it switches in 3 → 2 → 1 direction. This tests whether each segment turns on individually.

Display at the start of Anode Test



↓ (Input in CW direction)



2-3-6. FLD Grid Test Display and SHUTTLE Click Operation Test

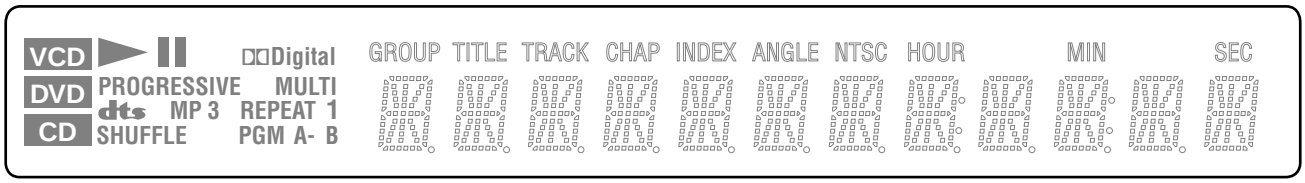
2-3-6-1. Transition Keys in Self Check Mode

- [↑] on the main unit and the remote commander
- SHUTTLE on the remote commander during Grid Test display (This model does not provide JOG/SHUTTLE, and therefore use another DVD remote commander having the JOG/SHUTTLE)

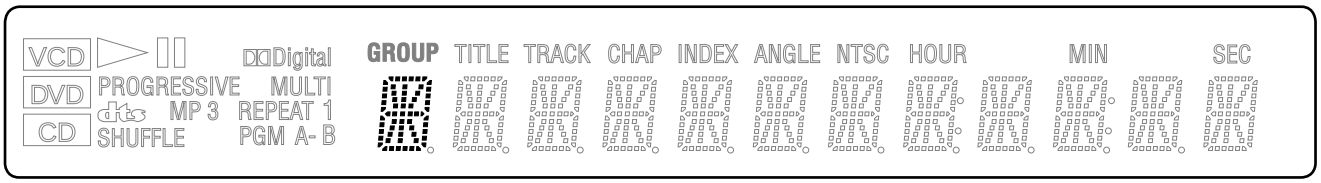
2-3-6-2. Operation and Display

The Self Check mode transits to this mode when [↑] key is entered. The first grid of FLD all turns on and other grids turn off. Each time the SHUTTLE is entered, the grid is switched in order. When SHUTTLE input is clockwise, the grid switches in 1 → 2 → 3 direction, or counterclockwise it switches in 3 → 2 → 1 direction. This tests whether each grid turns on individually.

Display at the start of Grid Test



↓ (Input in CW direction)



2-3-7. LED Test Display

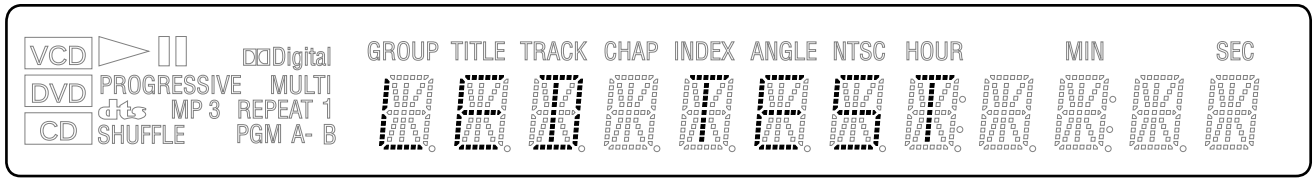
2-3-7-1. Transition Keys in Self Check Mode

- [↓] on the main unit and the remote commander
- SHUTTLE on the remote commander during LED Test display (This model does not provide JOG/SHUTTLE, and therefore use another DVD remote commander having the JOG/SHUTTLE)

2-3-7-2. Operation and Display

LED is switched in order by the input of JOG/SHUTTLE. Also, LED ON/OFF is switched by the input of same key as the function that turns on the LED concerned.

FLD display during LED Test



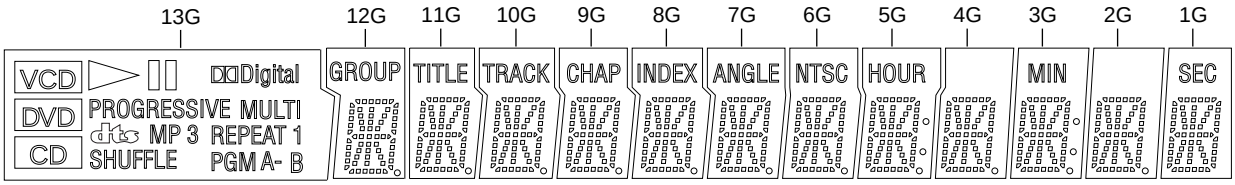
2-3-8. Beep Sound Test

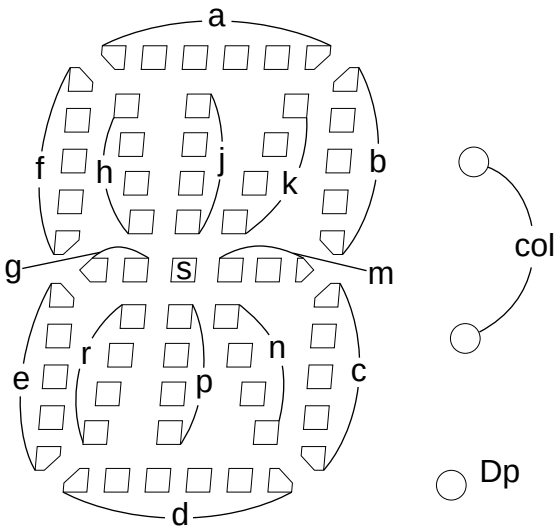
2-3-8-1. Transition Keys in Self Check Mode

- Input of a key on main unit

2-3-8-2. Operation and Display

In the Self Check mode, each time a key on the main unit is entered, a beep sound of 1kHz (100ms) is generated.





(12G~1G)

ANODE CONNECTION

	13G	12G	11G	10G	9G	8G	7G	6G	5G	4G	3G	2G	1G
P1	▷	a	a	a	a	a	a	a	a	a	a	a	a
P2	▯▯	h	h	h	h	h	h	h	h	h	h	h	h
P3	—	j	j	j	j	j	j	j	j	j	j	j	j
P4	Digital	k	k	k	k	k	k	k	k	k	k	k	k
P5	PROGRESSIVE	b	b	b	b	b	b	b	b	b	b	b	b
P6	—	f	f	f	f	f	f	f	f	f	f	f	f
P7	MULTI	m	m	m	m	m	m	m	m	m	m	m	m
P8	dts	s	s	s	s	s	s	s	s	s	s	s	s
P9	MP 3	g	g	g	g	g	g	g	g	g	g	g	g
P10	REPEAT	e	e	e	e	e	e	e	e	e	e	e	e
P11	1	n	n	n	n	n	n	n	n	n	n	n	n
P12	SHUFFLE	p	p	p	p	p	p	p	p	p	p	p	p
P13	PGM	r	r	r	r	r	r	r	r	r	r	r	r
P14	A-	c	c	c	c	c	c	c	c	c	c	c	c
P15	B	d	d	d	d	d	d	d	d	d	d	d	d
P16	VCD	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	Dp	-
P17	DVD	-	-	-	-	-	-	-	col	-	col	-	-
P18	CD	GROUP	TITLE	TRACK	CHAP	INDEX	ANGLE	NTSC	HOUR	-	MIN	-	SEC

6-11. TROUBLESHOOTING

6-11-1. Cannot Enter Test Mode

You cannot enter the Test mode when either button has been pressed by any reason with the board assembled in the front panel. In this state, the power does not turn on even under normal condition (the unit is kept in standby state), and also no button is active and the remote commander is not accepted. In this case, disconnect the MB-105 board and AV-64 board, and with the SELF CHECK (pin ⑩) of IF CON (IC404) on the IF-94 board kept in low state, supply AC, and the IF CON self-diagnosis mode will be forcibly activated. The IF CON (IC404) checks the SELF CHECK port only after the power on reset (only at AC supply, not in standby state). If any button is pressed, its name is displayed on the fluorescent display tube. But, if other than "NOTHING" is displayed though no button is pressed, it means that any button has been pressed.

6-11-2. Faults in Test Mode (MB-105 board)

1. The test mode menu is not displayed.

1-1. Board visual check

Check that the ICs of SYSCON (IC104), ROM (IC106 or IC107), AVD (IC403), ARP & SERVO (IC301) are working correctly.
Check that outside appearance of the ICs is normal.
Check that IC pins are not short-circuited.
Check that there is no soldering error.
Check that outside appearance of the capacitors and resistors is normal.

1-2. Power supply voltage check

Check the power voltage of the power connector (CN101).
Check the power voltage of SYSCON (IC104).
Check the power voltage of ROM (IC106 or IC107).
Check the power voltage of AVD (IC403).
Check the power voltage of ARP & SERVO (IC301).
If the power voltage has any abnormality ⟶
Check that the power supply lines are not shorted.
Check that there is no soldering error.
If any abnormality cannot be found still ⟶
Check that each IC is working normally.

1-3. Clock signal check

Measure the clock signal frequency at CPUCK (CL101) of SYSCON (IC104) with an oscilloscope.
If the 8.25 MHz signal appears. ⟶ Check the machine according to section 1-3-1
If the 33 MHz signal appears. ⟶ Check the machine according to section 1-3-2.
If other frequencies are output.
R110 and R113 have defective soldering, X101 crystal oscillator is defective.
If the measurement point is fixed to either "H" or "L". ⟶
Observe XFRRST (pin-⑯) of SYSCON (IC104) with an oscilloscope.
If the measurement point is "L", check the following items.
If the IC has defective soldering, if the IC is short-circuited.
If the measurement point is "H",
⟶ Component X101 or SYSCON (IC104) is defective.

1-3-1. When the 8.25 MHz signal appears at CPUCK

• Check the XRD, XWRH and CS0X signal.
Observe XRD (pin-⑦⓪), XWRH (pin-⑦①), and CS0X (pin-⑤⑧) of SYSCON (IC104) with an oscilloscope.
If these pins are fixed to either "L" (0V) or "H" (3.3V), or if these pins stay in the center voltage, check the followings.
Check if the signal line does not have the defective soldering.
Check if the signal line is short-circuited with other signal lines.
If you cannot find any problem ⟶ SYSCON (IC104) is defective.

• HA [0 to 21] signal and HD [0 to 15] signal check
Observe HA [0 to 21] (pins-⑩② to ⑩⑨, ⑪① to ⑪⑧, ⑫⓪, ① to ⑤) of SYSCON (IC104) and HD [0 to 15] (pins-⑧⑤ to ⑩⓪) with an oscilloscope.
If these pins are fixed to either "L" (0V) or "H" (3.3V), or if the HA pin stays in the center voltage, check the followings. (HD stays in the center voltage when it is normal.)
⟶ Check if the signal line does not have the defective soldering, or is short-circuited with other signal line or SYSCON (IC104) is defective.

• Reset signal check
Check if XFRRST (pin-⑯) of SYSCON (IC104) normal or not.
The signal starts up at the same time as Vcc ⟶ Defective soldering.

If the trouble does not apply to any of the above-described phenomenon, SYSCON (IC104) or ROM (IC106 or IC107) is defective.

1-3-2. When the 33 MHz signal appears at CPUCK

• WAIT signal check

Observe XWAIT (pin-⑥⑦) of SYSCON (IC104) with an oscilloscope.

If it is fixed to "L" (0V). ⟶ Observe CS2X to CS5X (pins-⑥⓪ to ⑥③).

If CS2X or CS3X is "L". ⟶ AVD (IC403) has defective soldering or AVD is defective.

If CS4x or CS5X is "L". ⟶ ARP & SERVO (IC301) has defective soldering or ARP & SERVO is defective.

If any one of the above is not "L". ⟶ XWAIT or CSnX is short-circuited or has the defective soldering or AVD (IC403) is defective or ARP & SERVO (IC301) is defective.

Center voltage ⟶ The XWAIT line has defective soldering or is short-circuited or AVD (IC403) is defective or ARP & SERVO (IC301) is defective or SYSCON (IC104) is defective.

• CSnX signal check

Observe CS0X to CS5X (pins-⑤⑧ to ⑥③) of SYSCON (IC104) with an oscilloscope.

If they are fixed to "L" (0V) or if to center voltage ⟶ Check that the ICs do not have the defective soldering or is short-circuited with the other signal lines or SYSCON (IC104) is defective.

CS0X: ROM (IC106 or IC107)
CS2X, CS3X: AVD (IC403)
CS4X, CS5X: ARP & SERVO (IC301)

If the trouble symptom does not apply to any of the above phenomenon, SYSCON (IC104) or ROM (IC106 or IC107) is defective.

2. Test mode menu is displayed but the machine stops when menu is selected

2-1. AVD (IC403) check

Observe SDCLKO (pin-①②⑦) of AVD (IC403) with an oscilloscope.

95 MHz ⟶ No problem

27 MHz ⟶ Observe the XRST, HA, HD, XRD, XWRH INT and CS signal waveform at the respective pins of AVDEC, AVD (IC403) is defective.

If the signal is other than the above frequencies ⟶ AVD (IC403) 27MHz signal line (CLKI (pin-①⑤⑧), SCLKIN (pin-①⑥⓪)) is short-circuited, IC mount is defective, AVD (IC403) is defective, PLL (IC103) is defective.

2-2. INT signal check

Observe INT0 to 2 (pins-⑯ to ⑱) of SYSCON (IC104) with an oscilloscope.

If they are fixed to "L" (0V) or fixed to the center voltage ⟶ Check that the ICs do not have the defective soldering, or are short-circuited, SYSCON (IC104) is defective, or the following ICs are not defective.

INT0: AVD (IC403)
INT1, INT2: ARP & SERVO (IC301)

2-3. If any abnormality cannot be confirmed by the above-described checks, check the CS signal that is currently output.

The CS signal other than CS0X is being output. ⟶ IC mount is defective or the IC is defective depending on the moving CS signal.

CS2X, CS3X: AVD (IC403)
CS4X, CS5X: ARP & SERVO (IC301)

If the trouble is not applicable to any of the above phenomenon, SYSCON (IC104) or ROM (IC106 or IC107) is defective.

3. If the message "SDSP No Ack" appears after the menu is displayed.

3-1. ARP & SERVO clock signal check

Check frequency of CLKIN (pin-①⑤⓪)

33 MHz ⟶ Normal

Frequency other than 33 MHz ⟶ CLKIN is short-circuited or defective soldering or PLL (IC103) is defective or ARP & SERVO (IC301) is defective

3-2. ARP & SERVO (IC301) PLL oscillation check

Observe PLCKO (pin-⑧⑦) of ARP & SERVO (IC301) with an oscilloscope.

If the pin is fixed to either "L" (0V) or "H" (3.3V).

If XRST if fixed to "L". XRST has the defective soldering, In all other cases. ARP & SERVO (IC301) is defective

If it is oscillating.

HA [0 to 7] are HD [8 to 15] are short-circuited, check XSDSPIT and XSDSPCS or ARP & SERVO (IC301) is defective.

4. If trouble occurs at the specific item of the "Diag All Check".

IC mount of the NG item is defective or IC is defective.

5. Picture and audio are not output.

Check connection of CN601 (AEP, UK, RUS) CN602

Check for the defective connection of flat cable and check of damage of the flat cable.

6. Picture is output but audio is not output.

Check the audio data output (at pins-②④, ②⑧, and ②⑨) of AVD (IC403)

The audio data is not output. ⟶ AVD (IC403) or audio DAC (IC502, 504) mount is defective or power supply is defective or AVD (IC403) or audio DAC (IC502, 504) is defective.

PLL (IC103) 512fs output check

If the frequency or waveform has abnormality. ⟶ The signal line has defective soldering or the signal line is short-circuited with other signal lines or PLL (IC103) is defective.

7. Audio is output but picture is not output. (EXCEPT NS705V)

Observe pins-③⑦, ③⑧, ③⑨, ④②, ④③ and ④④ of VDAC (IC604) with an oscilloscope.

If the analog signal is not output. ⟶ The signal line has the defective soldering or is short-circuited or parts are defective or VDAC (IC604) is defective.

Audio is output but picture is not output. (NS705V)

Observe pins-⑤⑤, ⑤⑦, ⑤⑨, ⑥①, ⑥③ and ⑥⑤ of AVD (IC403) with an oscilloscope.

If the analog signal is not output. ⟶ The signal line has the defective soldering or is short-circuited or parts are defective or AVD (IC403) is defective.

6-11-3. Drive Auto Adjustment stops due to error.

The ARP & SERVO (IC301) analog circuit of MB-105 board is defective or RF-Amp (IC201) or M-Driver (IC202) peripheral circuit is defective or optical pickup block is defective or flat cable connection is defective

6-11-4. The product itself is defective.

• If MB-105 does not have any problem,

The board other than MB-105 board is defective or connection is defective or optical pickup block is defective or mechanism deck is defective

1. Power LED does not light in Red when the AC power is turned on.

Check the EVER –13V (pin-③), EVER+3.3V (pin-⑪), +11V (AUDIO) (pin-⑬) voltage of the power supply block CN201.

If voltage is abnormal. ⟶ The power supply block is defective.

2. Power LED does not light in green after transmitting the POWER on command. It remains lighting in red (in the STANDBY mode).

2-1. Check the EVER -13V (pin-③), EVER+3.3V (pin-⑪), +11V (AUDIO) (pin-⑬) voltage at CN201 of the power supply block/

If voltage is abnormal. ⟶ The power supply block is defective.

2-2. Check if the fuse on the IF board has blown of not.

If the fuse has blown ⟶ Replace the fuse.

2-3. Check the P-CONT (pin-②) at CN401 of the IF-94 board when the POWER button is pressed.

If it remains at "L",

⟶ The signal line has the defective soldering or it is short-circuited with other signal lines or capacitor or resistor is defective or IFCON is defective or connection between the power supply block and the IF-94 board is defective, or connector installation is defective, or the power supply block is defective.

2-4. Check if the button is kept depressed in the IFCON self mode.

If the button is kept depressed. ⟶ The front panel is defective, or IF-94 board is defective.

2-5. Check PONCHK (pin-㉚) of IFCON (IC404) on the IF-94 board.

If it is 0.5 V or more. ⟶ The power supply is defective, or IF-94 board is defective.

3. Power LED becomes red (STANDBY mode) in at once through Power LED lights in Green once when the POWER button is pressed.

3-1. Check CN201 voltage of the power supply block when the LED lights in green.

If voltage is abnormal. ⟶ The power supply block is defective, or the IF-94 board is defective, or MB-105 is defective

3-2. Check XFRRST (pin-⑨) at CN101 on the MB-105 board.

If it is fixed to "L". ⟶ The signal line has defective soldering, or is short-circuited with other signal lines, or parts are defective.

3-3. Check IFBSY (pin-⑩), XIFCS (pin-⑪), SI0 (pin-⑫), SO0 (pin-⑬) and SC0 (pin-⑭) at CN101

If they are fixed to "H" or "L".

⟶ The signal line has defective soldering, or is short-circuited with other signal line, or parts are defective, or SYSCON (IC104) is defective

If they change between "L/H".

Connector installation is defective, or the IF-94 board is defective, or SYSCON (IC104) is defective.

If they stay in the center voltage.

Poor connection of flexible wiring board such as it is inserted in an angle diagonally, or defective soldering, or is short-circuited with other signal line.

3-4. Check PONCHK (pin-㉚) of IFCON (IC404) on the IF-94 board.

If rise-up time from 0.5 V to 1.5 V or more takes longer time, or it does not exceed 1.5 V or more. ⟶ The IF board is defective.

4. The LED lights in green but the FL display does not light when the POWER button is pressed.

Connection between the power supply block and the IF-94 board is defective, or connector installation is defective, or the IF-94 board is defective.

5. Both picture and audio are not output.

Connection between the power supply block and the IF-94 board is defective, or connection between the IF-94 board and the AV-64 board is defective, or connection between the AV-64 board and the MB-105 board is defective, or connector installation is defective, or AV-64 board is defective.

6. Picture is not normal. (Block noise or others appear.)

The MB-105 board AVD (IC403) or SDRAM (IC404, IC405) is defective, or ARP & SERVO (IC301) is defective.

SECTION 7
ELECTRICAL ADJUSTMENT

In making adjustment, refer to 7-6. Adjustment Related Parts Arrangement.

Note: During diagnostic check, the characters and color bars can be seen only with the NTSC monitor. Therefore, for diagnostic check, use the monitor that supports both NTSC and PAL modes.
Use the reference disc for PAL for check, and use the reference disc for NTSC for adjustment.

This section describes procedures and instructions necessary for adjusting electrical circuits in this set.

Instruments required:

1) Color monitor TV
2) Oscilloscope 1 or 2 phenomena, band width over 100 MHz, with delay mode
3) Frequency counter (over 8 digits)
4) Digital voltmeter
5) Standard commander (RMT-D146P/D147A/D147E/D1470/D147P)
6) DVD reference disc
   HLX-501 (J-6090-071-A) (dual layer) (NTSC)
   HLX-503 (J-6090-069-A) (single layer) (NTSC)
   HLX-504 (J-6090-088-A) (single layer) (NTSC)
   HLX-505 (J-6090-089-A) (dual layer) (NTSC)
   HLX-506 (J-6090-077-A) (single layer) (PAL)
   HLX-507 (J-6090-078-A)(dual layer) (PAL)
7) SACD reference disc
   HLXA-509 (J-6090-090-A)
8) Extention Cable (J-6090-107-A)

7-1. POWER SUPPLY CHECK

1. ETXNY393N2F Board : NS705V/NS905V/NS915V: HK, SP, MY, TH, PH, IA, VTM, KR
HS12S1U Board : NS755V/NS915V: TW
HS12S1F Board : NS915V: LA

Mode	E-E
Instrument	Digital voltmeter
EVER +3.3 V Check	
Test point	CN201 pin ⑪
Specification	3.5 ± 0.2 Vdc
SW +3.3 V Check	
Test point	CN201 pin ⑧
Specification	3.5 ± 0.2 Vdc
+5 V Check	
Test point	CN201 pin ⑫
Specification	5.0 ± 0.3 Vdc
SW +11 V Check	
Test point	CN201 pin ⑥, ⑦
Specification	11.0 ± 1.0 Vdc
+11 V (AUDIO) Check	
Test point	CN201 pin ⑬
Specification	11.0 ± 1.0 Vdc
EVER –13 V Check	
Test point	CN201 pin ③
Specification	–13.0 ± 1.0 Vdc

Checking method:

1) Confirm that each voltage satisfies the specification.

ⓘ Caution

Never touch the heat sink that is the primary part. It is feared that you may get an electric shock.

- Abbreviation
  AUS : Australian model
  CND : Canadian model
  EA : Saudi Arabia model
  HK : Hong Kong model
  IA : Indonesia model
  KR : Korean model
  LA : Latin-America model
  ME : Middle East model
  MY : Malaysia model
  NZ : New Zealand model
  PH : Philippines model
  RUS : Russian model
  SP : Singapore model
  TH : Thailand model
  TW : Taiwan model
  VTM : Vietnam model

7-2. ADJUSTMENT OF VIDEO SYSTEM

1. Video Level Adjustment (MB-105 BOARD)

<Purpose>

This adjustment is made to satisfy the NTSC standard, and if not adjusted correctly, the brightness will be too large or small.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	LINE OUT (VIDEO) connector (75 Ω terminated)
Instrument	Oscilloscope
Adjusting element	RV401 (NS705V) RV601 (Except NS705V)
Specification	1.00 $^{+0.04}_{-0.02}$ Vp-p

Adjusting method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Adjust the RV601 (or RV401) to attain 1.00 $^{+0.04}_{-0.02}$ Vp-p.

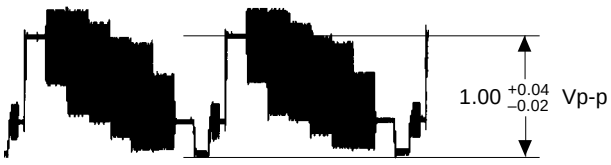


Figure 7-1

2. Progressive Video Output Level Adjustment (MB-105 BOARD) (Except NS705V)

<Purpose>

This adjustments progressive video output. If it is incorrect, correct brightness will not be attained when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (Y) connector (75 Ω terminated)
Instrument	Oscilloscope
Adjusting element	RV602
Specification	1.00 $^{+0.04}_{-0.02}$ Vp-p

Adjusting method:

1) In the test mode initial menu "7" Prog Level Adjustment, set so that color bars are generated.
2) Adjust the RV602 to attain 1.00 $^{+0.04}_{-0.02}$ Vp-p

Figure 7-2

3. Checking S Video Output S-Y

<Purpose>

Check S-terminal video output. If it is incorrect, pictures will not be displayed correctly in spite of connection to the TV with a S-terminal cable.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	S VIDEO OUT (S-Y) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	1.00 ± 0.05 Vp-p

Checking method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the S-Y level is 1.00 ± 0.05 Vp-p.

Figure 7-3

4. Checking S Video Output S-C

<Purpose>

This checks whether the S-C satisfies the NTSC Standard. If it is not correct, the colors will be too dark or light.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	S VIDEO OUT (S-C) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	A = 286 ± 30 mVp-p (NTSC)

Checking method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the S-C burst is "A".

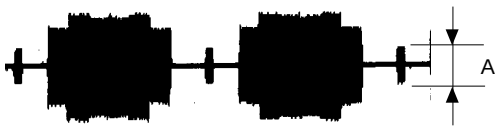


Figure 7-4

5. Checking Component Video Output Y

<Purpose>

This checks component video output Y. If it is incorrect, correct brightness will not be attained when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (Y) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	1.00 ± 0.05 Vp-p

Checking method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the Y level is 1.00 ± 0.05 Vp-p.

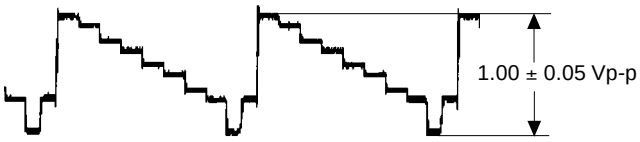


Figure 7-5

6. Checking Component Video Output B-Y

<Purpose>

This checks component video output B-Y. If it is incorrect, correct colors will not be displayed when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (P_B) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	A = 646 ± 50 mVp-p (For US, Canadian, E) A = 700 ± 50 mVp-p (Others)

Checking method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the B-Y level is A.

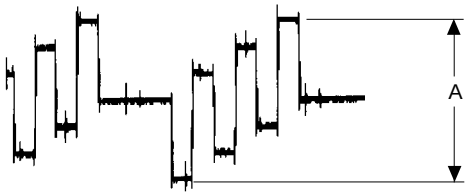


Figure 7-6

7. Checking Component Video Output R-Y

<Purpose>

This checks component video output R-Y. If it is incorrect, correct colors will not be displayed when connected to, for instance, projector.

Mode	Video level adjustment in test mode
Signal	Color bars
Test point	COMPONENT VIDEO OUT (P_R) connector (75 Ω terminated)
Instrument	Oscilloscope
Specification	B = 646 ± 50 mVp-p (For US, Canadian, E) B = 700 ± 50 mVp-p (Others)

Checking method:

1) In the test mode initial menu "6" Video Level Adjustment, set so that color bars are generated.
2) Confirm that the R-Y level is B.

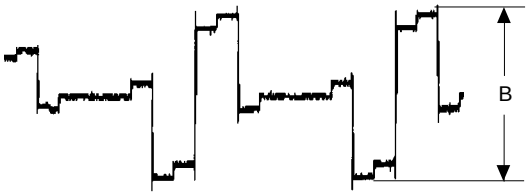
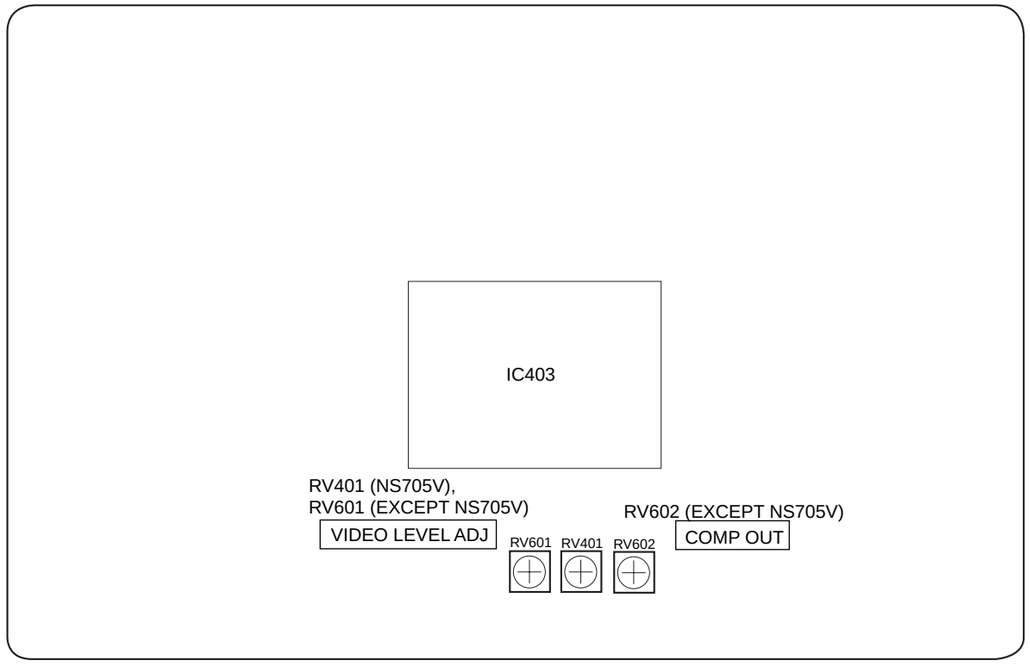
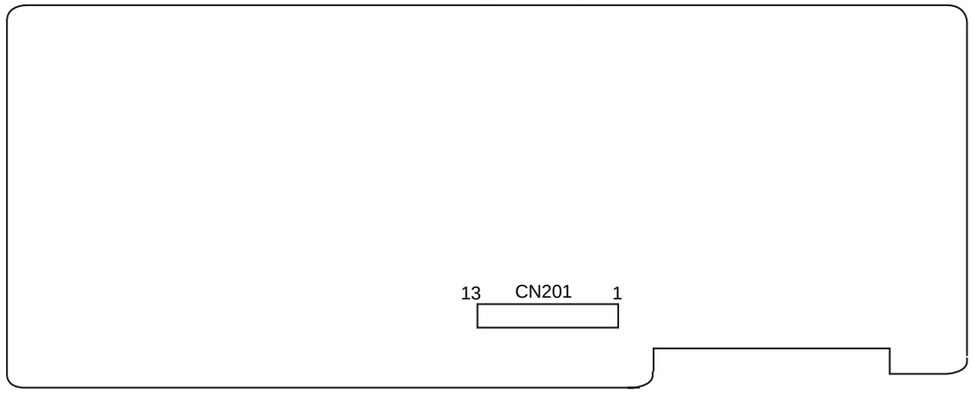


Figure 7-7

7-3. ADJUSTMENT RELATED PARTS ARRANGEMENT

MB-105 BOARD (SIDE A)



ETXNY393N2F/HS12S1U/HS12S1F BOARD (SIDE A)